



*How to protect your investment portfolio
from credit rating agencies, quants and
other quacks*

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To my parents and Crystal

“Definition of a Statistician: A man who believes figures don't lie, but admits than under analysis some of them won't stand up either.”..... Evan Esar

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Chapter 1 Credit versus Venture Financing

The creditor is not a venture capitalist and should not be participating in financing venturesome activities. A venturesome activity is one in which the quantity and timing of cash flows are not reasonably certain. Ventures must be financed through equity funding. A non performing loan or a defaulted bond is usually the result of a creditor, consciously or unconsciously, venturing into the venture domain.

Financing a venture makes no sense for a creditor. The more venturesome the activity being financed, the greater the potential for huge gains as well as huge losses. The creditor gets no share of the upside if the venture succeeds but is exposed to almost the same losses as the venture capitalist if the venture fails. Hence he should leave such pursuits to the equity investor who gets all the upside should the venture succeed. All that the creditor does when he ventures into the venture arena is to reduce the amount of risk capital that the holders of equity securities need to get into the venture. In effect, the creditor's role, if he accidentally finances a venture is to reduce the downside risk for the shareholders while improving the shareholder upside yield if the venture succeeds.

What are the characteristics of venture investments? Firstly, these could be absolutely new projects executed by a start up company. Because the project has never been executed before, one cannot visualize all the problems that can crop up during project execution. Hence it is not possible to determine with reasonable certainty the cost of executing such projects. Once these projects are commissioned, one cannot know for certain the number of users who would use the goods or services generated and the users' sensitivity to output pricing. Because of that, one cannot estimate the revenues with any degree of certainty. If you can't estimate the revenues, you won't be able to estimate the operating profit (the earnings before interest and tax, or EBIT) and hence you can't estimate whether interest

payments can be made in a timely fashion and whether the debt repayment schedule would be adhered to. After its attempt to make a tablet PC failed in 2002, Taiwanese PC maker Acer decided that it was content to let other companies take the lead in development of new products and jump in only once the viability of the product was proven in the market place. The company launched its netbook PC only once its competitor Asustek proved the viability of netbooks in the market place. That is the kind of operating philosophy a creditor should approve of.

Secondly, a venture project starts when an existing company with a predictable earnings profile ventures into a new arena for which it needs to commit capital resources that are a significant fraction of the company's current capital base. It might be tolerable for the creditor if the company, at the beginning of the venture, agrees to execute the venture in a separate subsidiary and covenants its lenders that it will not provide financing support beyond some well defined investment at the start.

Thirdly, creditors cannot be involved beyond the period for which earnings visibility exists. This critical debt maturity period varies from industry to industry and from company to company. Beyond that period, the exposure ceases to be a credit exposure and becomes venture financing. Even the great Benjamin Graham confused equity and credit risk when he blessed potential investments in ultra long tenured corporate bonds in his classic work "Intelligent Investor". Yes, in his co-authored treasure "Security Analysis", he does mention that bonds should be bought only on a depression basis, i.e., the company should be able to service its debt even under a depression scenario. You can estimate that ability for a possible depression in the next few years- how can you visualize cash flows two depressions (or rather recessions) after the next?

Credit Investing & Credit Analysis

Credit analysis is the assessment of the likelihood of a debt being repaid- not refinanced. The debt has to be repaid out of operating earnings after necessary cash is apportioned for ensuring continued sustenance such as maintenance and R&D expenditure. This analysis is incomplete if one restricts one's thought process to the entity being considered for a lending transaction. A company's revenue prospects depend on the extent to which the society in which it operates will continue to consume its goods or services at the current or higher rate. If a society is highly leveraged, chances are it will drop its consumption of all but essential goods. The household is the last link in the chain of societal consumption. Even a corporation which supplies goods to other corporations depends ultimately on companies which supply goods to households. Hence, when households are indebted, demand (number of units of various goods consumed) will fall across all segments of society. On the pricing side, the extent of capacity addition in the industry will determine the unit price at which the goods can be sold- so the financial analyst needs to know the capital expenditure plans of competitors.

The great economist Hyman Minsky classified borrowers into three types- hedge borrowers, speculative borrowers and Ponzi borrowers. The hedge borrower can make principal and interest payments from current cash flows (that is from the income generated). The creditor is interested in analyzing if such cash flows are sustainable. In the case of companies operating in industries with rapidly changing technology, cash flows can hardly be forecast outside the realm of the astrologer and such mumbo jumbo- hence such companies cannot support much debt. The speculative borrower can make interest payments from income but relies on debt roll over and refinancing to stay current on his obligations. Finally, there is the Ponzi borrower who relies on the appreciation in the value of the asset financed to meet his debt and interest payments (the carry trade in various forms). Obviously, credit financing is

rational only in the case where cash flows from operations can be used for principal and interest servicing. Venture investors can finance the other types of borrowers.

Over a period of time, the onus of credit analysis shifted from the borrower to the lender.

Chapter 18 of Matthew's gospel talks about debt and unlimited liability- where the borrower's wife and children served as collateral and were sold to pay off debt. Chapter 11 put an end to this and capped the extent of a borrower's liabilities. Even as late as the nineteenth century, a borrower could land in prison if he defaulted on his debt. This weakening of credit protection had one benefit for society- the borrower was more likely to take higher risk with borrowed money, potentially resulting in favorable outcomes for society through creation of new businesses and business models. But it also lowered individual responsibility. Earlier, the borrower calculated, assessed and took on debt which he hoped to be able to repay from his earnings. Now, because of limited liability, the lender has to assess how much debt the borrower could reasonably be expected to repay before which he might file for bankruptcy. That is the basis of modern credit analysis.

For companies, debt, unless guaranteed by a government, must be used by shareholders for riding product life cycles- not for innovative ventures. A product which has considerable certainty of producing revenue can serve as collateral for borrowings. These borrowings could be used by shareholders to change the capital structure of the firm as the firm can now support more debt on account of its steady cash flows. It is pay day for shareholders for having taken on a high risk venture before the product found buyers in the market place. The shareholders could use the debt for dividends and share buybacks. Or they could use it for R&D expenses or other venturesome pursuits- the creditor on the other hand knows he is relying on the cash from the successful product and not from the contingent cash flows of a new venture that the shareholders might initiate. The moment a creditor starts looking at a new venture as a source of cash flows, he has taken his eye off the ball. Ideally, new ventures

need to be ring fenced in separate subsidiaries to which capital transfer from the creditor financed entity are capped through loan covenants.

From time to time, due to excesses on account of easy liquidity, capital must be purged to ensure that returns to the capital employed are commensurate with cost of capital. Like European farmers, protected by the Common Agricultural Policy, who periodically pour milk into the sea to keep milk prices under control, capital must be purged from time to time through writedowns to ensure that it does not drive down returns on capital employed. The role of credit analysis is to ensure that when excess capital is purged, recoveries are sufficient so that providers of capital more junior on the capital structure are the ones who experience the pains of the purging process. If a creditor's capital is part of the capital that is purged during capital restructuring, it is more likely than not that the creditor took on venture risk and was now bearing the consequences.

In times of easy liquidity and consequent credit bubbles (whether originating in the governmental sector, the corporate sector or the household sector), life is very tough for long only credit investors (i.e. they are not permitted to buy protection through the CDS markets to short credits). There is an urge to take venture risk to secure higher short term returns to pacify their investors. The pressure from investors is tremendous- it is hard for the asset manager or lender to convince investors that though one is inert, one is fishing and not standing on the shore like an idiot.

Societal Debt: The Macro Indicator of Investment (Debt and Equity) Soundness

The central tenet of this book is that a good investment analyst cannot judge the investment story of a company by looking at the company's financials in isolation. Even before one gets on to analyze a company, one needs to look at the debt levels of the society in which the company operates. And for a multinational company, one needs to look at the societal debt

levels of all the company's big markets. Else, one would be terribly surprised when one sees companies that looked fairly healthy on standalone metrics suddenly plunge into a whirlwind of troubles.

We define Societal Debt Ratio (SDR) as the ratio of the total debt of a society (government, household and corporate) to the country's Gross Domestic Product (GDP). An allied concept is the Societal Savings Ratio (SSR), which is the ratio of the total annual savings of society (government, household and corporate) to the country's GDP. We discuss this thesis in detail in Chapter 3-“Consolidated Risk and Consolidated Financials”.

Credit Rating Agencies are a perpetual freak show in their sovereign credit rating analysis because they analyze a sovereign's credit strength by narrowly looking at the government's debt level and government's savings level, without considering the fact that high household and corporate debt levels can plunge a country quickly into Hades. A country having a boom in asset prices that cannot be explained by productive returns from the use of the asset, thanks to an incompetent central bank that ignores asset prices for its policy response, accompanied by a jump in household debt and fall in household savings, will also witness high collection of taxes from capital gains and property taxes. The jump in asset prices will improve apparent household wellbeing, causing the households to splurge on trinkets. The corporations that make those trinkets and provide allied services will witness huge increases in corporate profitability, which would translate into higher corporate tax collection for the government. And when the trinkets come from a foreign land, the trinket exporting country will start reporting huge trade surpluses and accumulating reserves in the currency of the consuming country. The trinket exporter invests his trade surplus in the government debt of the trinket consuming country, driving down yields on the importing country's debt.

Suddenly, the consuming country's government starts witnessing budget surpluses and the central bank, in a fit of inspiration, declares that a new paradigm is afoot. And when central

bankers, after deep cogitation, try to describe the apparently new paradigm, words like “conundrum” abound. Politicians, God bless their hearts, would work at finding new ways to spend the surplus, so as to improve “general welfare”. To talk about fiscal discipline in such an environment would be positively curmudgeonly. That spending in turn creates more demand, and an even warmer and cuddlier feeling among households that God is in his heaven and all is right with the world. And if the government’s surpluses cannot be invested in conventional projects (such as paying down debt), they can always be used for starting wars elsewhere. This also drives up profits of some companies. Because of increased corporate profitability, share prices would zoom up, retirement accounts and college education accounts look fully funded (and perhaps a tad over funded). Households jump to the conclusion that saving a portion of one’s income is an idea whose time had come and gone and propounded by old fogies of a bygone era due to natural feebleness of mind with advancing years.

Increased corporate profitability would create its own behavioral dynamics. Flush with cash, companies set out on M&A empire building, initially cautiously, not employing crazy amount of debt. But as profits zoom up year after year, a capital structure that employs low debt seems not to be “maximizing shareholder value”. Share buybacks are resorted to set this “anomaly” right. The M&As also get financed with higher and higher amounts of debt. The return on equity of the companies hits stratospheric levels, but companies do not get fearful that societal debt is going through the roof. New capital expenditures are planned at corporate off-sites to meet increased demand. These expenditures also tend to be financed more and more with debt.

Like the Carpenters who did not spot a cloud in the sky, all seems halcyon. Government finances seem to be in rude health with revenues outpacing expenses. Government debt as a percentage of GDP seems low. And joy in unalloyed when international rating agencies

Moody's and S&P place a crown of twelve stars on the sovereign debt and pronounce it triple-A. Even a consolation prize in the form of a triple-A from Fitch Ratings would do.

When households are leveraged to the hilt, all that is required is a small push for the script to go awry. Debt levels hit such crazy heights that even interest servicing becomes difficult. They start defaulting on their loans, taken for keeping up with the Jones, without realizing that the Jones' credit card companies are sending them nasty notices and subjecting them to unfriendly phone calls while payday lenders are beating at the door. Suddenly consumption starts falling, and corporate inventories start piling up. Corporations "let go" of employees. These leveraged employees then default on their loans. As corporate profits go southwards, leveraged corporations call up their banks for "corporate debt restructuring". Banks urge their regulator to come up with new norms for defining what constitutes a bad loan. Some small banks go belly up, and after some time, capital ratios of "systemically important banks" start getting questioned.

With screams for bailouts hitting maniacal proportions, the government steps in to do battle. Bailouts are organized. Committees are set up. Stimulus packages passed. And government debt shoots up, not exactly at a linear pace. If the debt party had lasted too long, government debt goes up at an exponential pace. Income tax collection goes down as unemployment shoots up. There are no capital gains to tax. In fact, entities start claiming tax credits. For instance, on the back of a capital gains tax bonanza and taxation on sky high corporate profitability due to a credit binge, tax collection in Japan in 1990 was ¥60 trillion. As these sources of taxation dried up, tax collection fell in the subsequent years, falling to ¥49 trillion in 2005. Property prices fall and property tax funded visions of government officials fall by the wayside. The fiscal deficit hits double digits. Rating agencies make murmuring sounds, without looking at the man in the mirror who lacked the intellectual wherewithal to spot the trouble earlier on account of the flawed methodology of looking exclusively at

government finances during the good times. The strength of government finances in an environment of rising household debt and corporate debt is ephemeral at best.

It is this cartoon like methodology which caused the agencies to rate Ireland triple-A in 2007.

The fact that income from property taxes had jumped several folds over a decade did not perturb the agencies one bit. Moody's rated the leveraged fish producer Iceland Aaa in 2008 in a shockingly incompetent manner (we will not accuse them of corruption unless evidence emerges later- impropriety requires intention to do wrong which incompetence precludes).

The UK continues to be rated triple-A, but none but the seriously retarded buy that story.

Spain's asset prices boom seemed not out of the ordinary to the agencies, which feted an incompetent socialist government with high marks until the bubble bust. The only two sound big European countries, Germany and France are countries with low household debt. All the rating agencies missed the Asian crisis because they ignored the corporate debt levels of those countries- that too short term debt in foreign currencies. And all the agencies downgraded the afflicted countries in unison. Monkey see, monkey do, is not only the motto of farm sheep- it is also the battle cry of the rating agencies. In summary, high household debt and corporate debt translate into non performing assets for banks. And when banks are bailed out, or a bailout of an economy is arranged through stimulus packages, government debt levels jump up. And the crisis induced by household or corporate debt will translate into lower income and higher expenses for governments, thus putting their fiscal positions in a tizzy.

Allied with the rating agencies' incompetence on the societal debt side is their scandalous ignoring of household savings. The wizards of S&P rate Spain above Japan, ignoring the amazing household savings of Japan. Japan's biggest financial institution, Japan Post alone holds around \$ 2 trillion of household savings. 80% of the deposits are placed in government bonds. Obviously, a society such as that can support far more government debt than a society with a lower propensity to save. Merely quoting a single ratio of government debt to GDP is

imbecilic because it ignores the immense flexibility that household savings confer. True, demographics are not on Japan's side, but neither are they on Spain's side. In the long run, putting money as the disposal of the government is not good for a society's competitiveness. But in the medium term, it ensures that the government's debts are serviced in a timely fashion.

Book Structure

The book begins by discussing how creditors get into trouble by financing schemes that fall outside their realm and in the realm of venture financing. We attempt to delineate credit risk which a creditor is paid to assume after intelligent analysis (and not following credit rating agency groupthink), from venture risk which has upside potential and which an equity investor assumes. Fundamental to this analysis is understanding the credit story of an entity being considered for credit investment. The credit story helps an investor understand how certain or uncertain a company's earnings are likely to be in the near future. We discuss, in chapter 2, a broad canvas for understanding the credit story of a company. We caution the investor that the discussion on the credit story is not a cook book whose recipes are immune from change. In a dynamic world with accelerating pace of change, new factors are likely to crop up. The intellectual search for the credit story, as opposed to a hard and fast and hackneyed credit rating methodology, will help the analyst spot the changes required in his analytical framework. Such a dynamic state of mind would have spotted trouble like the ones that were brewing at the credit insurers like MBIA since 2004. A mind trained in tinkering with financial projections based on past happenings would be singularly ill-suited for that endeavor.

Having understood the credit story, in chapter 3, we would look at the consolidated financials of the entity being evaluated. If the entity is a sovereign, merely looking at government finances and calculating a zillion ratios would be callow and will fail to do the trick. The

reason for accident prone sovereign credit ratings is due to the fatally flawed methodology of the rating agencies. At the core of the methodology is a disproportionate importance given to the income statement of a sovereign (through the fiscal /revenue deficit numbers) and its balance sheet (through calculation of sovereign debt as a percentage of GDP) while ignoring the debt structure of the society at large- including the household income statement (the savings rate) , the household balance sheet (household debt/GDP) , the corporate income statement (return on capital employed) and the corporate balance sheet (average corporate debt equity ratio). Very high private sector debt can cause bank failures and bank bailouts or deep recessions which require big stimulus packages for bailing out the economy. Both bailouts and stimulus packages can cause huge increases in government debt within a short period. In addition, when the private sector debt comes home to roost, the subsequent economic downturn can cause a debilitating impact on governmental revenue (from income tax, capital gains tax and property tax) and a sharp increase in spending (for items such as unemployment benefits). Despite the error of their methodology being repeatedly exposed, when sovereign crisis after sovereign crisis were not forecast, the agencies have not summoned the will and intellectual resources to change their methodology. In chapter 3, we analyze a few sovereign credit rating failures and lay those at the door of their flawed methodology.

Consolidated financials need to be used for companies which try to separate their debt financing into two parts - full recourse and non recourse debt. We put forth thoughts on consolidated financials of companies with chunks of non recourse debt such as European contractors on account of PPP (public private partnership) investments in infrastructure projects, quasi non recourse debt such as the debt of the financing arms of manufacturing companies and the debt load carried by Japanese kieretsus.

Post understanding the big picture of the consolidated financials of a company or a government entity, in Chapter 4, we calculate the true gearing of a company's balance sheet. That involves correct valuation of the assets and liabilities of the firm and making adjustments when assets are carried in the books at higher values than their true worth and liabilities at lower than their true costs. What is of interest to the financial analyst is not current valuation, but how those valuations are likely to evolve over the tenure of a debt instrument. We particularly look at assets and liabilities of financial institutions such as banks and insurance companies, intangible assets of manufacturing companies and unfunded liabilities such as employee benefits. Taking values of banks' and financial institutions' assets based on "model outputs", because no body is willing to buy those assets at any price is a prodigious display of ignorance and incompetence- both of which the credit rating agencies displayed in abundance prior to the 2007 credit crisis when they assigned superlative ratings to banks and financial institutions that were technically insolvent. A deleterious side effect of this lunacy was that several institutions miscalculated their counterparty credit risk and the credit risk of financial instruments (such as municipal debt) guaranteed by such institutions. The rating agencies did not have any clue about the correct valuation of Level 3 assets, (assets which have no market quotes but which are priced using "models") which in many cases were several times shareholders' equity. The agencies did not permit such niceties from coming in the way of assigning a high rating based on stated asset values. The ultimate example of faith based credit rating! The long debt driven boom of the last two decades lured the agencies into complacency and they did not update their rating methodologies to account for "financial innovation". In addition, the natural aversion to critical thinking at such agencies and the deep rooted belief that he who pays the piper must call the tune ensured the anomalies were not spotted.

Asset values are not static and change in response to economic conditions and technological progress. The equipment required to make horse carriages must have sharply plunged in value when the automobile industry took off in the early part of the twentieth century. Such an asset is called “impaired” and its value must be written down to the value at which it can generate returns higher than the cost of capital. When such a write down happens, the greater the cushion provided by shareholders’ equity, the less is a creditor impacted. This is also discussed in chapter 4.

Efficient working capital management plays an important role in sustaining a company’s competitiveness. Working capital management strategies varies from industry to industry. In Chapter 5, we look at working capital management in the construction, the ship building, fashion retailing, airline and the hotel industries. Efficient working capital management results in the need for lower short term debt to finance working capital requirements. On the other hand, excessively aggressive working capital management, attained by pushing suppliers too hard, can cause supply chains to rupture.

Contingent liabilities are given scarce attention in conventional credit analysis, perhaps because they can’t usually be used to generate financial ratios readily. Ratios seem to bring untold joy to rating agencies, hence the myriad ratios you would find in a credit rating report. Contingent liabilities from product liabilities and warranties can be serious. For instance, not being able to estimate the true cost of product warranties can result in overstatement of operating profits and the saving of trouble for another day. We also look at contingent assets- mostly the uncertain reserves of oil and gas exploration companies. Contingent liabilities are the cornerstone of a credit insurer’s business and we cast doubts on the way the credit insurers book income. We analyze contingent liabilities and assets in chapter 6.

Contingent liabilities have acquired a great deal of importance in the last two decades due to

management's focus on the "here and now", i.e., overstate earnings today and not worry too much about the harmful effects on the balance sheet tomorrow.

All this sets us up to calculate the most important ratio that a credit analyst needs to calculate—the return on capital employed (RoCE). In chapter 7, we look at the RoCE calculations in some industries with high operating leverage such as the semiconductor industry and the process industry. We look at the RoCE in industries which depend on discretionary spending such as the entertainment industry. We analyze the retail industry where RoCE is extremely sensitive to working capital management. RoCE in industries where demand never falls off the cliff, like the utilities sector, is looked into. RoCE has to be calculated over a business cycle and not at a single point in time. The credit analyst has to confirm that the returns have been achieved from capital employed and not through weakening of the balance sheet, thus pushing the bad news into the future.

Management is the key to a company's future performance. It is vital for the credit analyst to have a clear understanding of a management's integrity and risk appetite. Managements which have a history of moves that are unfriendly to the providers of debt capital have to be eschewed. In chapter 8, we discuss the hazards of providing debt capital to companies led by individuals such as Donald Trump. Disengaged CEOs (like those at most big banks during the credit crisis), perhaps even well meaning second raters, are indicators of deep rooted dysfunction and should signal the creditor that his interests are not safe. We also look at covenants that are required to keep a company from taking on too much risk and to keep management within the path of virtue.

Before a credit investment is made, a financial projection for the tenure of debt has to be created. The greater the ease with which the projections can be made, the more likely that the principal and interest will be repaid. Creating financial projections focuses a financial analyst's mind. The moment an analyst finds himself making heroic assumptions that he is

not comfortable with, he can be sure that he has ventured into the venture domain. Financial projections are discussed in chapter 9.

These days, advanced mathematics is being flaunted in the world of credit investments and credit derivatives. Any mathematics beyond the fundamental mathematical operations of addition, subtraction, multiplication and division is unwarranted for most purposes. As Thomas Aquinas put it, “not everything that is more difficult is more meritorious”. It is purveyed around by individuals who lack credit skills but still want to dabble in the world of credit. Most of the mathematics used is outright fraud, which are only suitable for usage in physical sciences but not in the world of finance and economics. And when a mediocre mathematician dabbles in a field he is ill at ease with, no good outcome can be expected. The gullible who are impressed with anything they don't understand are doomed to losses if they fall for such wiles and part with their hard earned cash. Sensible credit investors might even be able to make above normal returns by trading against these mediocre mathematicians, short on common sense required for credit investing. Many quantitative models like FICO scores are not even based on causality. The mathematics used in securitization and CDO valuation is just plain wrong and the losses that investors suffered should not have come as a surprise to anyone who is well versed with both credit analysis and mathematics.

Why did senior management at big investment banks permit such absurdities? There can only be two explanations- and the explanations are not mutually exclusive. Firstly, as demonstrably seen, most of the senior management have been Peter's Principle creatures – rising to their level of incompetence. The CEOs of Merrill Lynch, Bear Stearns, Lehman Brothers and Citigroup were people who did not have a foggiest idea what was happening and were perhaps (to be charitable to them) too shy to ask. The other explanation is if these techniques could be used to fool clients on the buy side such as pension fund and insurance

investment professionals and generate valuable fee based income, surely it would be churlish to ask questions and risk upsetting people who were coming up with such “quantitative techniques”. If the PhD in Math was throwing up bizarre stuff which impressed the client, why risk pissing him off when he might walk into the welcoming arms of another shop and take the client with him? We discuss the failings in the use of Mathematics in Credit in Chapter 10.

In chapter 11, we attempt to learn lessons from investment calls- calls made by rating agencies, credit investors, short sellers and distressed debt investors. The aim is to prevent the investor from falling into potential wayside ditches, into which others have fallen in the past. Also, lessons are learnt from successful investment calls, calls which had been hugely rewarding to the investors who made those calls.

Every chapter is filled with examples from company experience (the “stories”). Also, most chapters have accounting boxes which discuss what the accounting standards have to say on key issues. Text boxes have been interjected to provide more clarity on a topic under discussion without destroying continuity of the main narrative.

Historical Perspective of Credit Risk and Venture Risk

Financing of Wars: Greed and Stupidity of Confederate Debt Subscribers

War is essentially an unproductive enterprise which does not produce income to pay for itself. The only wars that have had a positive return on capital were the ones that realized returns from looting such as was the case with Chengiz Khan or the British Empire. As a fifteenth century military commander put it, ‘to carry out war three things are necessary: money, money and yet more money.’ When the money is procured externally by an entity which might not exist after the war, if it lost the war, and severely weakened financially should it be victorious, financing such an enterprise is clearly a venturesome activity. Unless the war is

financed by general purpose debt issued by a sovereign with strong finances waging war with a very weak entity, creditors have no business being around as the activity clearly has a venture odor and color.

Despite the venturesome nature of the activity, creditors eager for yield have rushed to finance sovereigns indulging in war, only to come out of the experience sadder. The Florentine bankers of the 14th century were caught on the wrong foot when they financed a war mongering English king Edward III who finally defaulted on his loans. Post the Napoleonic Wars of the early 19th century, France, Austria, Russia and various German entities defaulted on their debt obligations. Medieval debt to a sovereign was inherently a venture some pursuit- the succeeding regime did not feel the necessity of paying its predecessor's loans.

We don't know what analysis holders of US Confederate Debt were using when they subscribed to the bonds issued by the Confederacy at the time of the US Civil War. Were they betting that the Confederacy would win the war? Because under no other circumstance did subscribing to the Confederate bonds make any sense. And when the battle ahead certainly did not appear one sided, investing in the debt was foolhardy, even without the benefit of hindsight. Sensibly, Europe's leading bankers Rothschild and Baring refused to underwrite the loans. In 1862 the Confederacy raised loans backed by cotton in London which was to pay a coupon of 7% semiannually. The bonds were sterling denominated but had the option that allowed investors to convert into cotton (the biggest source of trading income for the Confederacy). Unfortunately for the creditors, the bonds were redeemable only within the Confederacy- so to redeem the bond, the investor had to succeed in breaking through the naval blockade of the union forces. Rothschild had aptly described the bonds as so speculative that it was likely to attract only wild speculators. The Confederacy also issued gold bonds in Amsterdam to Dutch investors.

Once the Confederacy lost the battle of Gettysburg, all its bonds sharply declined in value. To make matters worse for the cotton bond investors, when the Confederate soldiers were retreating, they burned down the cotton stored so as to prevent resources from falling in enemy hands. After 1863, interest in the bonds was limited to venture capitalists, where it belonged in the first place.

The same sequence of events occurred more than half a century later in Russia. When the Bolsheviks took over the country from the Tsar in 1917, they repudiated all the money owed by the Tsarists. French investors were the ones at the receiving end. Some US citizens had subscribed to Tsarist bonds secured by Russia's railroads. Why the investors felt that having the security, situated inside the territory of the entity whose default would trigger the security, would be useful is beyond conventional understanding. To compound the merriment, in 1928, the Soviet Union tried to issue \$ 30 million of railway bonds secured by the same railways. The Soviets, believing Lenin's dictum that a capitalist would sell you the rope to hang him with, engaged some US banks like the Chase National Bank of New York to get US investors for the bonds. The bank did find investors since the bonds promised an attractive rate of 9% before the US State Department stepped in.

Financing Risky Voyages without Debt: the only way to Finance Ventures

The ancient voyages in search of new trade routes were highly risky, even speculative. There was the promise of untold riches, but the venture started without even a clear map in hand. Obviously, it did not make sense to finance such ventures without a stake in the upside. Christopher Columbus had his financing sewed up with King Ferdinand and Queen Isabella of Spain. There was an element of debt financing from Italian investors. The Spanish rulers wanted to get control over the spice trade to India, which was worth the risk. Columbus, as the employee of the king, was entitled to some upside- he would be made viceroy of all the new lands discovered and he could keep one-tenth of the loot. A similar structure was in

place for financing Ferdinand Magellan's trip in search of the spice trade route. In the face of several other financing alternatives, King Charles the V of Spain insisted on financing the whole expedition himself so that he did not have to share the rewards with others. Magellan of course had to be given a share of the upside for pursuing such a venture- he was to be granted the title of governor of any island he discovered, keep 5% of the revenue from the discovered islands (the early stock option) and 25% of the profits from the spice cargo of the first voyage. Manuel the king of Spain financed explorer Cabral's explorations to India, though other investors were allowed to buy into the potential gain. Cabral was, as in the other cases, allowed a share of the profits from the spice trade.

This should have been the model for financing risky ventures where one just cannot forecast with reasonable certainty the revenues that would accrue. There was no debt financing. Yet, many centuries later, projects with similar venturesome features were being financed with debt.

When the Creditors Financed Projects without Clue of Earnings or Costs

Iridium and the Pie in the Sky for Creditors

The default on debt by Iridium Inc in 1999 is a classic case study of what happens to creditors when they finance enterprises they have no business being involved with. Here was a new business whose customer acceptability and revenue models were uncertain, a business in which failure would result in low recoveries as there were few alternate uses for the assets. Yet creditors did not think it sensible to keep away or structure it as an equity investment with potential upside.

Iridium was incorporated in 1991 as a wholly owned subsidiary of technology major Motorola. The aim of the company was to use a constellation of 66 low-earth orbit satellites to provide reliable communication from any point on the globe- whether in the middle of the

sea or at the highest mountains. Mobile networks not based on satellite technology relied on base stations that would cover a few kilometers each- obviously it was not viable to put up such base stations in remote locations. Originally the plan was to have 77 satellites- hence the name Iridium, an element with the atomic number 77 in the periodic table.

The ownership structure was diverse as Motorola diluted its holdings in the company by bringing in suppliers and contractors to the project such a telecom component maker Kyocera of Japan, equipment suppliers Lockheed and Raytheon of the US and telecom companies of many countries. The initial cost of building the Iridium network was estimated as \$ 3.5 billion. In a one off project, it is almost impossible to get the project cost estimations done correctly upfront and the risk is not mitigated even when the risk of project cost overruns is passed on to contractors and suppliers through contracts. If one supplier fails, the whole structure can collapse unless there is a very strong contractor, whose balance sheet size is much larger than the estimated project cost, agrees to provide a cover against cost overruns. The capital cost consisted of the cost of getting the satellites operational as well as the cost of terrestrial network development.

Between 1993 and 1998 Iridium spent \$ 4.8 billion, much higher than the original project cost estimate. The funding involved \$ 500 million of secured bank debt, \$ 1.62 billion of issued debt securities, \$625 million of bank debt guaranteed by Motorola and \$ 86 million of vendor financing. Of all these sources of debt, only the facility guaranteed by Motorola made any sense provided Motorola's own creditworthiness was not put at risk on account of its exposure to Iridium. The vendor financing might make sense if the vendor did not have sufficient orders and had a high fixed cost structure. By early 1999, the secured bank debt had expanded to \$800 million.

Iridium needed 400,000 subscribers to break even. By May 1999, the company had only 10,000 subscribers. We fully understand the excitement in the mid 1990s when industry

analysts were predicting humongous growth rates for satellite phone. Base station based mobile phones had not yet taken off. However, a common standard for such services was just coming into existence. Though the GSM specifications for mobile phones had been put in place in 1990, it was only in the late 1990s that subscription volumes took off. And Iridium itself had several technical limitations- when users were inside buildings outside the line of sight of the terrestrial satellites, the phones would not function. Of course, the phones functioned very well at sea and on the mountains- but the number of users for such applications were woefully limited and did not support such a high fixed cost.

All those issues were irrelevant from the creditor viewpoint. Firstly, there was no clear fix on costs. Secondly, the technology was unproven. Thirdly, there was no certainty on user acceptance, particularly vis-à-vis the GSM mobile standards. Without knowing user acceptability one cannot estimate loan recovery in case the company is unable to service its debt. The shockingly high cost of the satellite phone and its clunky design should have triggered the thought that it was not a gadget for everyone. Fourthly, there was no clear idea of schedule of user acceptability –i.e. number of potential users at different pricing points. The likelihood of the creditor being paid from operational cash flow rested on a number of untested assumptions. In short, a venture investment where the risks being taken were huge, but so were the potential rewards. In 1998, many equity analysts had buy recommendations on Iridium, but that was in keeping with the spirit of the times. The funny thing about the loan agreements was that they had stringent earnings covenants when the earnings themselves rested on hope and not were based on past track record.

Finally, in August 1999, without enough customers signing up, the company filed for bankruptcy. Motorola wrote-off its equity investments. The only lenders who came out ahead were those whose loans were guaranteed by Motorola. The story ended when the company was sold to a privately held consortium for \$ 25 million which planned to use it for

narrower purposes such as communication at sea and for military uses. Because of the low capital cost for the new investors, the break even number of customers required was only 60,000 subscribers. The recovery for the Iridium unsecured lenders was nothing to gloat about.

Eurotunnel and the Saga of Creditor Overreach

Engineers have an instinctive mistrust of systems with too many moving parts. The Eurotunnel, between UK and France not only had all the characteristics of a venture, with huge uncertainties in project costs and revenues, the whole project structure had too many moving parts in terms of project design, contract structures, financing structures, relationship among numerous agencies and relationship between public and private entities. That meant that the project, at least from the investment standpoint (credit or equity), was doomed even before the first brick was laid.

The Eurotunnel, connecting France and England through an undersea rail tunnel was one of the largest privately financed engineering projects in the world. The construction was to be carried out by a consortium of construction companies known as Transmanche Link (TML). The consortium was a joint venture between Translink of UK (which in turn was a consortium of five British construction companies including the UK's largest construction firm Balfour Beatty) and Transmanche Construction of France (a consortium of five French construction firms).

Mega construction projects can succeed if all the project risks can be clearly identified upfront and the risk passed on to the entity, whether a contractor, a supplier or a government which is best placed to handle that risk. The risk is passed on to that entity through a contract mechanism, involving potential levy of a steep penalty for non-fulfillment of contractual obligations. For instance, in a well structured construction project, construction risk is best

handled by the contractor. So the risk of project delay and completion not to specification is passed on to contractor by requiring that the contractor pay liquidated damages for breaching contractual obligations. Of course, this contractual stipulation is pointless if the contractor does not have the financial muscle to make the payments if required to do so. So, in addition to the contract being water tight, the creditworthiness of the contracting company is crucial for the project risks to be meaningfully mitigated.

In a one-off project like the Eurotunnel, it is not possible to identify the project risks in a consequential way upfront. Some project risks such as hydrological surprises (which is also a big risk in mega hydro electric projects) and risks emanating from change in project design are best underwritten by governments. Else, there are endless disputes, cost and time overruns and all round grief for investors.

The initial project equity came from the contractor consortium and amounted to £45 million, which increased after a private institutional offering of £206 million and after an IPO for £770 million. Initial debt was raised through a consortium of 206 global banks. The project construction commenced in 1987 and was due for completion within seven years. The project was awarded to the Eurotunnel company on a build own operate transfer (BOOT) basis, i.e. the project company was responsible for building the project (through a construction contract awarded to the construction consortium) owning and operating it, collecting the revenues from the use of the project facilities (such as revenue from passengers and freight) and transferring it, at the end of concession period, to the British and French governments. The original concession period was 55 years and in 2042, the asset's ownership was to have passed on to the governments. The concession period was later extended to 2086, with 59% of the group's pre-tax profits to be paid to the government from 2052.

The construction contract had three principal parts- a) Target works including tunnels and underground structures. At commencement of project, it was estimated that 50% of the project costs would come from this source. This part of the contract was to be paid on a cost plus basis, with the contractors permitted to have a 12% profit margin. If the actual cost was less than the target cost, the consortium would receive 50% of the savings. If the actual cost was more than the target cost, contractors were to bear 30% of the overrun subject to a ceiling of 6% of the project cost b) Lump sum works including terminals, fixed equipment, metal and electrical works. Here the contractor was responsible for any overruns c) Procurement items like locomotives and shuttles for which payments were to be made to the subcontractors of the items. The contractor consortium was to oversee the subcontracting process and was to be paid a 12% profit margin on the sub-contracted items. The contractor consortium had to pay £350,000 in liquidated damages for every day delay in project completion up to 6 months and £500,000 per day after that.

There were several issues with the project structure. Firstly, the contractors were also part owners of the project leading to conflicts of interest in contractor-owner negotiations. Secondly, the ceiling imposed on the extent of liquidated damages payments meant creditor interests were not protected if the project delay was protracted. Thirdly, the project design was not frozen at the commencement of construction. There were design changes which required additional costs and additional time for completion. Disputes between the contractor and the project company were not resolved till 1994 with huge cost overruns paid to the contractors.

With every passing day, the project was getting more and leveraged as cost overruns and interest accrued on existing debt spun out of control. Several rounds of debt restructuring ensued and more and more covenants were breached and forgiven. At the core of the project's structural flaw was the non-involvement of the governments in underwriting certain

risks which neither the project company nor the contractors were equipped to handle.

Without those government inputs, the project was not ready for credit financing. Yet lenders rushed in lemming like to be a part of a project which obviously was a prestigious one. But lenders are not in the business of gathering prestige by financing prestigious counterparties. Finally, in July 2006, Eurotunnel applied for bankruptcy under French law. There was a debt for equity swap, representing more a triumph of hope over experience. Creditors are not compensated merely because the debt is called equity from a particular date and the former equity holders are wiped out- anyway the former equity holders were subordinate. So the transaction was pointless as there was still no clear picture of costs and revenues. In 2007, the company eked out a small operating profit for the first time. But much capital had been destroyed in a venture that creditors should have shunned from day one.

Solyndra's Government guaranteed Debt Financing: The only acceptable Venture Credit

California headquartered Solyndra designs and manufactures photovoltaic systems for the commercial rooftop market. The company was founded in 2005. The company's tube-shaped thin film solar panels have low cost per system and fairly high solar energy output from a typical commercial rooftop facility. There is a possibility that this company would on a stand alone basis be able to succeed, considering its huge backlog of orders. However, the venture is not suitable for credit financing. The technology for solar systems is still evolving and a number of possibilities are being tried around the world. There is every chance that Solyndra's technology might be supplanted by superior solar panel technology elsewhere- and that too at short notice. There is of course a lot of promise- unlike traditional solar panels, Solyndra's panels are made up of a row of tubes which can better capture direct and reflected light. But creditors cannot rush to support promising ventures. They need something more solid than that.

Solyndra is backed by many venture capital firms and that is precisely the right financing structure for the company. However, the US government wanted the company to rapidly build its manufacturing facilities- something that would not be possible only with the venture capital provided. Additional financing was required, but the company was not suitable for credit financing considering the huge uncertainties in future revenue. So, in 2009, the US Department of Energy stepped in and provided guarantees for \$535 million for building a manufacturing facility for making solar panels. The loan was expected to provide debt financing for about 73% of the cost of setting up the manufacturing facility. The facility is capable of annually producing panels that can generate 500 MW of electricity. The guarantee was the first to be provided by the Department of Energy since the 1980s.

This structure is the only way debt financing can be provided to a venture. Of course, the guarantor need not always be a government. It could be a strong company. But in both the cases, the creditors do not rely on the success of the venture for repayment of their loans.

Credit Quality of Companies Backing High Risk Ventures

“Big Hairy Audacious Goals” of Airplane Makers are risky for Creditors in future, unlike in the past

In their book “Built to last” by Jim Collins and Jerry Porras, the authors wax eloquently about the audacious goals that airplane maker Boeing set for itself, how it bet the ranch on new product development and how it prevailed. For instance, they describe how Boeing in the 1950s transformed itself from a maker of military airplanes such as the B-52 to a commercial airplane manufacturer and in the process took on huge risks. In the area of commercial airplanes, the company was looking to pioneer jet engine powered planes unlike its competitor McDonnell Douglas which focused on building propeller powered airplanes.

The moves by Boeing were not as risky for creditors as seemed at first blush. True, the company placed one-fourth of its net worth in the pot for product development. But Boeing

at that time was not leveraged and it had steady income from a strong and creditworthy customer- the United States Air Force. 80% of its revenues came from this one source. Normally, that is not a good sign for creditors but with the cold war becoming hotter with every passing day, the dependence on a single customer was not that risky. So, creditors of that time could have lived with the gamble as well as the gamble in the mid 1960s of building the 747.

Creditors to Boeing's competitor, Airbus Industrie, always had a clearer visibility of what would happen if the company's ventures did not succeed. Airbus is the subsidiary of European Aerospace company EADS. When Airbus entered the field in the mid-1960s, the game was dominated by entrenched American aircraft makers. The company reduced this huge product development risk through collaborative risk sharing efforts among the shareholders (who were European aviation companies from countries such as France, Germany and the UK) and by taking financing support from their governments. Particularly, the launch aid from governments and subsidies structured as research and development contracts were comforting to creditors. The governments themselves were creditors offering loans at below market rates. And despite growling noises from the supporting governments from time to time whenever there were delays in product launches, governments collectively remained committed to the company. In the late 1960s when the UK government reduced its commitment, the German government stepped in and increased its shareholding.

This happy state of affairs is not likely to persist in the near future. Future airplane development will be really venturesome. Perhaps, new planes conforming to aggressive emission standards would have to be developed soon. In the past Boeing relied a lot on financing of its customers by the US EXIM bank. Once the sale was consummated, future risks passed on to the US tax payer. Aircraft financing in this manner and product launch subsidies will fall foul of international trade agreements. So the risks of product development

will fall squarely on the balance sheets of Boeing and Airbus. In the third quarter of 2009, Boeing took a charge of \$ 1 billion related to product development. These things will be quite common in future. Perhaps, Airbus' A380 and Boeing's 777 (the Dreamliner) would be the last projects where the shadow of state provided comfort to creditors. In addition Boeing is taking on huge residual value risk which we discuss in Chapter 3- "Consolidated Financials and Consolidated Risk".

Areva's new Nuclear Power Plant Designs are venturesome but acceptable Credit Risk

France's nuclear power plant turnkey contractor Areva has many things going for it which make even its 4.875% 15 year bond issued in September 2009 an acceptable credit risk. We would not take such a long dated risk on other players in the business such as Japan's Toshiba or the US-Japanese joint venture GE-Hitachi. Areva, for various reasons discussed below, will continue to be the biggest player in the nuclear power business.

Areva is at present owned 92% by entities linked to the French state. Of these entities, the French Atomic Energy Research Organization, CEA, held 79% of the shares as on 31st August 2009. CEA is required by French law to own majority stake in the company. France has a rich tradition of nuclear power with the bulk of the country's electricity demands met by this source. Effectively, the French state had underwritten the risk of development of nuclear power plants during their risky phase. Once a particular configuration of nuclear power plant has been successfully demonstrated, plants using the same configuration can be commissioned in a much shorter time frame and at lower costs. Replicating nuclear power projects has very low execution risk and is cost effective. On the other hand, when a new design is tried, the first plant built with the new design is highly risky and it is impossible to get a clear fix of project costs and execution schedule.

Areva is involved in all aspects of nuclear power from mining of uranium, enrichment of uranium, fuel fabrication, building power plants to spent fuel processing. Nuclear reactors for power generation can be broadly classified into two types- light water reactors and heavy water reactors. Light water reactors are of two types- boiling water reactors (BWR) and pressurized water reactors (PWR). In a BWR, steam is generated inside the reactor and transported by pipes to the steam turbine for power generation. In a PWR, on the other hand, steam is not allowed to be formed inside the reactor by keeping the water at high pressure. This water, referred to as the primary coolant, transfers heat in a steam generating unit to the secondary coolant (also water). This is not kept at a high pressure and hence gets converted into steam. This steam goes to the turbine to generate power. The PWR design is the most popular one and about two third of the world's nuclear power plants employ this technology. France is the global leader. Areva had by 2003 built all of France's 58 PWRs. In a heavy water reactor, heavy water is used as the moderator. These reactors have the advantage that they can use natural uranium as opposed to enriched Uranium. Canada is the leader in this technology.

In the early years of the twenty-first century, Areva developed a new type of PWR design called the European Pressurized Water Reactor (EPR) that uses moderately enriched Uranium Oxide as fuel. The aim of the design was to improve power plant availability thus reducing unit cost of producing power. Since most of the costs of a nuclear power plant are fixed, improved availability directly reduces unit cost as the number of units generated goes up. The EPR design is also thought to improve safety and reduce the probability of core meltdown by a factor of 10. The design conserved uranium and reduced the waste generated from the process.

In December 2003, Finish utility TVO awarded a turnkey contract to a consortium of Areva and German capital goods major Siemens AG to build the first advanced power plant using

the EPR design (“the OL3” project). As we had mentioned earlier, whenever a new design is tried, the risks are huge and subsequent events proved the fears were justified. The customer, according to Areva, had a complicated process for approving technical documentation for ensuring safety. There were many requests to modify the design. Because the design was new, the company gave a guarantee to TVO for the EPR project for the full value of the contract and received counter guaranty from Siemens corresponding to Siemens’ share in the project. The net commitment given by Areva had a value between €1.5 billion and €2 billion.

On account of provisions for the OL3 project, the Reactors and Services division of Areva reported an operating loss of €687 million in 2008, compared with a profit of €179 million in 2007. By the end of 2008, the total loss from the project was estimated at €1.7 billion. In the first half of 2009, a further €550 million of provisions were created, taking the estimated loss from the €3 billion project to €2.3 billion. These potential losses to Areva from the OL3 project are about the same as the company’s gross profits, so it was certainly no trifling amount. Besides, the company’s gearing is slightly above one times when one considers not only the borrowing component but also the unfunded “end of nuclear cycle” obligations. However, we would not be worried about taking dated credit exposures to the company.

Though no fans of the peak oil theory (a variation of this theory implied that natural gas finds in the US had peaked. However, in 2009, there was a single gas find which expanded the country’s natural gas reserves by 25% almost overnight), nuclear power’s time has come on account of changed public perception, both from fears of global warming on account of burning fossil fuels and the increased safety of nuclear power. The company’s business does not permit easy entry on account of the high technology involved. The business would continue to be R&D intensive which companies with multiple businesses to provide for would not be able to do so with single minded focus like Areva. And each time a new design comes, one has to provision for losses from the venturesome first project (the gains

accrue later from executing many projects with the same design), which again Areva is best positioned to do. The French sovereign is behind the company which is a big plus. While government subsidies would lead to problems in the times to come, if the company does have a financial problem, there is nothing to prevent the government agencies that own Areva from infusing capital by subscribing to rights issues of the company. The single minded focus on nuclear power is a source of added comfort- the company had a sizeable transmission and distribution business which the company offloaded in 2009 to Alstom and Schneider Electric. Added succor for creditors comes from the fact that the company has indicated that dividend payout would be limited to 25% of net income from 2010. Finally, the company controls 40% of the lucrative nuclear fuel market which will ensure continuous income in the foreseeable future. The company is also assured of annuity like income from selling replacement parts and services to reactors it has already constructed. So, even if the company got just a few orders in the next decade, it can sustain itself.

Given these strengths, it does not make any sense for the rating agency S&P to rate Areva four notches below GE, a company more prone to financial engineering (and hence less protection for creditors) than real engineering like Areva (which protects creditors). Perhaps, two decades ago, the rating might have made sense (when Areva's business model had more venture like characteristics). But rating agencies, when they are not transforming junk into AAA for fees, are prone to look at the past rather than at the future. When they are not greedy, they are incompetent. Neither attribute is very helpful for credit investors.

This does not imply Areva's path ahead is a bed of roses. Future competition will come from a very different quarter- from a company that has many of Areva's DNA to succeed in the nuclear power business and that has mastered the art of producing reactors cheaper than Areva. That company is South Korea's Korea Electric Power (KEPCO). On account of the non-Luddite attitude towards nuclear power of the people of South Korea, the company has

established a track record of building and running nuclear power plants. Korean law requires sovereign holding in KEPCO to be at least 51%. KEPCO's technology is behind Areva's, but the competition will only get keener. However, given the prospects for nuclear power in the decades to come, there is room for both the players to thrive. The key will be the safety record of the competitors, which only "one-party democracies" can afford to ignore.

Venture Risk from financing for tenures beyond Crystal Ball Visibility

The most perilous assumption that investors and rating agencies make is the expectation that the future would be very like the near past and the present. Alas, that is never true- else we would be warming ourselves with a bonfire by a cave side as our distant ancestors did. When change is a given, how should an investor be positioning himself? An investment analyst analyzing a company can divide the future into two periods- a period during which the company's earnings can be forecast with reasonable certainty (the crystal ball period) and the period beyond, where anything is possible.

The length of the crystal ball period varies from company to company and from analyst to analyst. If a company is in an area that is not vulnerable to sharp changes on account of technological developments, the length of the period would of course be longer. Also a bright analyst, who understands the dynamics of the industry in question can more accurately estimate the time it would take before the company's current strengths can be dissipated unless fortified by a fresh booster dose of responses to changes in the operating environment. Obviously the crystal ball period for such an analyst would be longer. If a company has strong patents that cannot be challenged and that accounts for a significant percentage of the company's earnings, the crystal ball period is lengthened. A company that has low debt has a longer crystal ball period because it is less vulnerable to short term cyclical downturns and can survive such downturns. So, the crystal ball period depends on sustainable competitive advantage (the income statement visibility) and capital structure durability (balance sheet

visibility). Managements which frequently indulge in share buybacks reduce balance sheet visibility. Managements which are too active on the M&A circuit or the management guru circuit spewing wisdom on one and all reduce both income statement visibility and balance sheet visibility.

It is in the crystal ball period that credit financing is possible. Beyond the crystal ball period lies the venture period where wonderful things can happen, but a creditor's return does not include potential upside from the success of the ventures. But it definitely involves participating in the pain if the ventures do not see the light of day. Hence, there is no rhyme or reason to be a participant in credit financing beyond the crystal ball period. If the investor wants to venture into the venture period, it makes sense for him to be an equity investor rather than a credit investor so as to get the full upside of the success of ventures.

For most companies, the crystal ball period does not extend beyond five to ten years. There are companies, of course, where credit financing is possible beyond that- but they are few and far between. Investing in deeply distressed debt is not credit investing but venture investing unless the potential investor has a clear idea of cash flows post a restructuring. Buying bonds of deeply distressed companies is effectively like purchase of a call option on the distressed company.

General Motors' 8.375% Bond due 2033: What were the Investors thinking?

It is stated in a later chapter that the credit story of leading US automaker General Motors effectively ended in the early 1990s when the management, with singular lack of guts, surrendered to the United Auto Workers Union's demands. That comprehensively killed the business model of the company- from that point, the company's fixed costs were unsustainably high requiring high levels of production (even when the market could not absorb the production) to keep unit cost of production at tolerable levels. In effect, the

company had lost control over its production planning and when that happens, the corporation had effectively lost the plot. The high production beyond market absorption levels had to be sold to car rental companies on a continuous basis, killing residual values of used cars which also lowered the credit quality of its financing arm GMAC.

That did not mean short term financing was not possible since the early 1990s. There was always some crystal ball visibility for the next few years, the number of years decreasing with every passing year, with practically no visibility by the end of the decade. The return on capital employed had fallen to abysmal levels. Yet, when GM came up with its \$1.5 billion 30 year bond issue in July 2003, investors could be readily found. What were investors thinking? Did the high coupon numb their thinking organ? Did they draw too much comfort from the fact that the company had been around for almost a century and hence fell into the trap of believing it would survive and service its debt during the next century? Did they get too used to the expectation that a big company like GM just can't go down? Did they forget the biggest caveat in investing- past performance is not a good indicator of future performance?

In 2003, it would not have been possible to predict that GM would file for bankruptcy in 6 years. Various forces can conspire to keep a company that's on its deathbed alive beyond the point its pupil can react to external stimulus. But bankruptcy was definitely an item, almost in the realm of certainty if one looked at the financials of 2002. A flawed business model and a severely weakened balance sheet on account of its unfunded pension plans meant that survival required deep concessions from the unions. Expecting reasonableness from well entrenched unions to be the cornerstone of one's credit investment thesis is residing in realms untouched by the cold hand of reality.

Within a couple of years after the issue, the bonds were trading at a discount of 25% to face value. They kept going down in value until they were trading at 18 cents to the dollar in

December 2008, when the US government announced a \$ 17.4 billion rescue plan for the company. At that price, the bonds might have made sense for a venturesome investor (i.e. not a credit investor). The venture investor, in December 2008, might have looked at the following positives- things were so bad that even the obdurate unions might make concessions. And the terrible management, the unworthy successors to Alfred Sloan, might finally be booted out and fresh blood brought in from outside the paralyzed company. Also, the venture investor might have thought that if rent seeking parasites masquerading as banks could be bailed out (the theory that banks cannot be allowed to fail because of systemic implications was a canard spread by the banks themselves- failure of a few banks would have drastically deleveraged America's financials and right sized the banking industry), a manufacturing giant might also be bailed out. Of course, we now know that those things did not come to pass. An US administration beholden to unions and that was prepared to kiss good bye to property rights ensured creditor rights were not protected. The investor who based his investment premise on the fact that US governments, no matter how left of centre, have protected property rights would have encountered much pain when he was arm twisted into accepting a measly recovery during GM's bankruptcy process. But the best time (without the benefit of hindsight) to have invested in GM's debt during the last two decades was in December 2008. And the worst thing one would have done was to invest in GM's 30 year bonds in 2003.

Loans Collateralized by Equity Shares is not Credit Investing

One of the most bizarre forms of credit investing is giving out loans backed by shares of companies. These loans could be of two types. The first type is a loan given to an individual/company collateralised by shares of a company over which the individual/company has no control over. The second type involves loans collateralised with shares of a company over which the individual/company has control over operating decisions.

The loan collateralized by shares can be used as a tool by a promoter to increase his shareholding in a company, while bringing in only a fraction of the amount required for purchasing the shares. He hands over the purchased shares as collateral to the lender. There is a strong correlation between the financial strength of the borrower and the value of the equity holdings. If the company is doing well, the promoter can use the dividend payouts to service the debt, and the value of the share price is irrelevant. If on the other hand, the company is not doing well, dividends might not be forthcoming. Because of that, the equity also loses value reducing its use as collateral. So, the collateral is not available at the precise moment when it is required to protect the loan. Due to this, it would have been preferable to lend unsecured to the promoter after thorough credit analysis than lend secured backed by a collateral that is closely correlated to credit quality, particularly in an adverse macro economic environment. Had the lender lend unsecured, he would have garnered additional yield without the false comfort engendered by lending against shares.

Lending against shares can also happen when someone finances the takeover of a company. The lending bank finances the purchase of shares, with a fraction of the money required for the purchase coming from the acquiring company. Again, the bank is taking on equity risk under the guise of credit risk. Excess comfort is drawn from the equity collateral provided. And when the news from the company is not good, not too much can be realised from the sale of the equity even to a strategic player for whom it makes sense to takeover the company. M&A is a pursuit that has as much prospect of success as a Silicon Valley venture- so the framework to be used for analyzing potential financing must be similar.

What if the shares provided as collateral are of an entity which is unrelated to the borrower? In this case, at least there is no correlation between the credit and the equity risk. Here, the situation is most probably better than unsecured lending. And if the shares belong to a

company to which one would have extended standalone credit on an unsecured basis, the creditor is indeed better off.

Equity Linked Bond of Lehman Brothers: where Credit Risk was correlated to Market Risk

Equity Linked Note (ELN) is a bond instrument that provides investors principal protection together with some equity market upside exposure. The coupon income is determined by the appreciation of a stock index such as the S&P 500. At maturity, the investor gets his full principal back plus the interest payments linked to the equity market performance. When issued by investment banks, they go by funny acronyms such as MITTS (Market Index Target Term Securities) of Merrill Lynch, ELKS (Equity Linked Securities) of Salomon Brothers, SIGN (Stock Index Growth Notes) of Goldman Sachs etc .

On a standalone basis itself, the very existence of this instrument (so called structured notes) reveals confused thinking on the part of the investors. What investments are they making? If they are fixed income investors who require a fixed coupon, this investment makes no sense. If they want to be in stocks while protecting their principal, they could buy government securities (risk free and the only way in which principal is really protected) and use the coupon income to buy call options on a market index such as the S&P 500.

When such a security is issued by an investment bank, it is even more baffling why credit investors participate. An investment bank's income and hence credit quality is correlated with the state of the equity markets. If equity markets go up, the credit quality of the company improves and not only does the investor get high interest income, but the principal is more likely to be returned. On the other hand, if the markets go down, not only does the investor accrue lower interest income, the chance of getting even this reduced income and the principal is lower as the credit quality of the issuer falls. Clearly, investment in this note not only involves taking market risk (lower accrued income if the market goes down), but

also credit risk linked to market risk (lower chance of the accrued interest and the principal being repaid). The instrument, however, makes a lot of sense for issuers. In times of lower income, they need to accrue lower interest expenses. Besides, these structures involve the accrual of fees to the issuer which is enough to make any issuer salivate.

Lehman Brothers had been a big issuer of these products until it expired “unwept, unhonored and unsung” in the middle of September 2008. The company’s issues went under the acronyms Suns (Stock Upside Note Securities) and Prudents (Prudential Research Universe Diversified Equity Notes). The company issued \$ 1.84 billion of such notes even as late as a month before its bankruptcy filing. These notes were unsecured ones. Obviously, a month later investors discovered that their principal was not protected. The last item in the risk factors to the issue listed in the prospectus was “An investment in the notes will be subject to the credit risk of Lehman Brothers Holding Inc, and the actual and perceived creditworthiness of Lehman Brothers Holdings Inc may affect the market value of the notes”.

Debt Repayment through expected Refinancing/Asset sale is speculative

Over the last two decades, credit investors everywhere have moved from the notion that debt has to be repaid through internally generated resources to the premise that debt has to be rolled over or refinanced. Also, in some financing structures, there is the expectation of debt repayment through asset sales. Creditors who base their go/no go decisions based on likelihood of refinancing are exposing themselves to market risk- that market attitude towards the credit would not change and that they would not be market disruption which prevents refinancing. A creditor basing his investment decision on refinancing expectation is a subscriber to the greater fool theory. He expects that someone else will provide debt financing without doing credit analysis, relying on expectation of refinancing from yet another fool.

Companies which have very short tenured debt liabilities vis-à-vis duration of assets place expectation of refinancing at the heart of their liability management strategy. With yield curves normally sloping upward, resorting to ultra short duration financing artificially reduces interest costs, thus improving profit before tax metrics. When ultra short term debt is combined with high gearing, the whole liability structure is a house of cards ready to topple over at the first sign of market disruption.

Among financing institutions, companies which finance long dated fixed rate mortgages with very short term loans expose themselves to the risk of their net interest income turning negative if short term rates go up. Of course, if a vibrant securitization market is available, the financing institution can reduce its risk by offloading the assets to companies such as insurance companies which need long dated assets. However, the liability structure must have the flexibility to handle disruptions in the securitization markets. If mortgage loans are kept in the books and they are financed by short term debt, refinancing is built into the strategy. If the interest rates rise sharply, as during the S&L crisis in the US in the late 1980s, the value of the assets would fall sharply, exposing the financier to potential insolvency.

Creditors have a history of tragic outcomes by financing the purchase of non income producing “assets”. It does not matter if the “asset” being financed is a tulip or a gold bar. The prayer of the creditor foolish enough to venture into such a territory is that the appreciation of the asset would ensure principal and interest repayment. On the downside, the hope is that the asset will not fall in value beyond the “equity” contribution of the owner of the asset. Many commercial mortgage backed securities (CMBS) structures rest on the fragile assumption that the underlying property can be sold off at the “right price” to ensure that the CMBS tranches are repaid. A bite by something sharper than a serpent’s tooth is in store for such creditors in the next few years.

Debt financing in a Non Revenue/Non Cost Currency is venturesome

If debt is contracted in a currency that is not the same as a company's revenue generating currency or its cost incurring currency, the company is just exposed to too many parts. If the risks emanating from this unmatched exposure are hedged, it should be done using futures/forward instruments that are exchange traded. Having long dated OTC derivative exposures for hedging currency risk brings with it counterparty credit risk. The argument about having tailor made derivative contracts in the OTC market does not fly when you are not sure whether the counterparty would be solvent to fulfill his commitments.

Restructuring of Indonesia's Paiton Energy Power Project on account of Currency Mismatch

The 1230 MW PT Paiton Energy Project was Indonesia first private power project. The project cost was \$2.7 billion and it was located in the island of Java in Indonesia. In 1994, Paiton Energy signed a Power Purchase Agreement (PPA) with Indonesia's electric utility PLN. The tariffs in the contract were denominated in US dollars. The tariff's fixed component had to be paid even if no power was demanded by the utility and hence no power was generated. Paiton Energy had also signed a coal supply agreement with a subsidiary of Australian mining giant BHP. The lenders to the project included 36 commercial banks, bond investors and export credit agencies and political risk insurers such as the US Exim Bank, JBIC and OPIC.

In 1997 the Asian crisis hit Indonesia. The Indonesian Rupiah tumbled from around 2,600 to the US Dollar before the crisis to around 14,000 during January 1998. The plant was commissioned in May 1999, but PLN refused to off take power from Paiton. Firstly, demand for electricity had collapsed post the Asian crisis. Secondly, the tariffs in Indonesian Rupiah were no longer viable for PLN on account of the sharp depreciation in the currency. In November 1999, Paiton Energy and PLN began renegotiating the PPA. The tariffs were

lowered but the term of the power purchase was extended from 30 years to 40 years (whiff of the Eurotunnel concession). The project sponsors had to bring in additional equity to keep interest payments current. The commercial banks agreed to accept delay in principal repayment. The US EXIM bank which was involved in financing the project equipment took on higher risk post the restructuring.

The lenders had strayed into an arena where they did not belong when the tariffs were denominated in USD to be able to repay USD denominated debt. A utility cannot raise its tariffs in response to currency movements, especially if the currency movement was too rapid. The creditors assumed that the past gradual movement in exchange rates would persist in the future. They definitely took on venture risk.

Corruption was part and parcel of Indonesia's private power policy under the dictator Suharto. It was hardly surprising that corrupt Enron had ventured into Indonesia's private power sector. In 1994, Enron invested \$ 25 million in a natural gas based power project in partnership with Suharto's son Bambang. Enron suspended work on the project in 1997 after PLN said that the US Dollar denominated tariff was no longer viable in Rupiah terms.

Loans to flawed Structures involves assuming more than Credit Risk

If a financing structure or vehicle is not on a sound legal or economic footing, it is usually inadvisable to participate as a creditor. Sometimes one can lend when the collateral provided is very sound and appropriate hair cuts have been considered. But the assets need to be ring financed against capture by a bankruptcy court.

Contrary to current beliefs, there are no flaws in the securitization and collateralized debt obligation (CDO) structure per se. Whether a securitization or a CDO tranche is suitable for credit investment depends on the underlying assets and the incentive structure for the originator, both at origination and post securitization.

Flawed Hedge Fund Compensation Structure makes Credit Financing Risky

Hedge fund managers are paid a fixed percentage of assets under management as investment management fees. But the biggest chunk of hedge fund employee returns comes from incentive fees which the investment managers get when they beat certain return benchmarks. If the investment returns go underwater, the fund manager is not entitled to incentive returns until the funds come above water again. So, if the fund goes deep below water, it makes sense for the hedge fund manager to close the fund and try his luck again with the roulette by starting a fresh fund. The success that failed managers have had with raising funds a second or subsequent time clearly shows that it is not outlandish for a hedge fund manager to close out an underperforming fund. Even if the manager does not close the fund, his heart is not likely to be at the steering wheel, with dwindling prospects of king sized payouts.

Whether the compensation structure makes sense for investors in hedge funds is a different debate. But for creditors such a fragile structure is very worrisome. The only financing to the hedge fund that makes sense is one that is secured by assets that are clearly ring fenced from the fund and can be sold by the creditor once certain events are triggered. After ring fencing, the assets have to be evaluated purely on a stand alone basis and assessed for the extent of over collateralization available. The creditor should not factor in liquidity of the collateral in his analysis because liquidity of an asset class can disappear at short notice.

Second Lien Loans are Equity Risk

A second lien loan is seldom a good idea for a creditor. The most prominent second lien loan is the second lien mortgage loan against a home. The first lien loan, with proper credit assessment for loan to value ratio of the asset financed and the income to installment ratio of the borrower is a sound credit exposure. The necessity for the second lien loan points to a borrower with poor savings propensity. And when the borrower is not bringing in any down

payment, his commitment towards repayment would be low, and would get lower if the house prices fall. In effect, a second lien lender has given the home owner a free option on house prices- if house prices go up, the borrower would sell the house and repay the debt while if house prices fall he would walk away. Basically, the second lien lender is relying on asset sale for repayment.

Because the option written by the lender has a non zero value (the higher the household debt of the country of the loan, the higher the value of the option), the second lien lender has in fact given the borrower a valuable asset besides lending him money. Obviously such a flawed structure made sense only if the loan was off-loaded to third party investors and the returns to the second lien loan originator quickly monetized- which was what happened in the US from 2003. What caught the fancy of the investors of the securitized products, other than the eye popping yield, is difficult for a sensible credit analyst to fathom.

Lessons from Italy's Monte Dei Paschi Di Siena for Creditors

Surely creditors have something to learn from a credit institution that has survived for more than five centuries. The world's oldest surviving bank, Monte Dei Paschi Di Siena, formed in 1472 in the Italian state of Siena, has been the very opposite of the reckless lending practices seen during the last decade. The bank learnt its lessons early in its existence. In 1492, the bank incurred losses financing Christopher Columbus' expedition. After that, the bank seldom backed ventures. It started financing farmers which was a fairly low risk activity on account of fact that the climate was conducive for farming in its loan catchment area. Unlike other banks of the time, it did not provide trade financing which was a venturesome activity then. Initially, the bank took clothing and jewelry as collateral for loans, but gradually it also took land as collateral. The bank became a big landowner on account of repossessing the land collateral. Because of the bank's sound business model, it survived when the Italian banking sector collapsed in the early 1930s.

In the modern era, agricultural financing is quite different from Monte Dei Paschi's fifteenth century model. One of the soundest banks in the world, Dutch bank Rabobank is a leading player in the agricultural financing business. There are three risks in financing farm loans- risk of crop failure, the risk of sharp drop in produce (and the price) and finally risks emanating from the other activities of the farmer which can get him into a cash crunch.

Monte Dei Paschi's taking land as collateral is a suitable cover only for the third risk. The other two risks are beyond the control of the farmer. Rabo provides multi peril crop insurance and revenue insurance to protect against the other two risks. By taking a premium for providing the cover, the bank reduces the credit risk of its own loan and when the premium is paid by farmers across many regions, the insurance risk is also covered.

Likewise, the bank provides insurance against price fall, again securing its own loan. So, the land collateral serves only for covering non farm activities of the farmer which can land a farmer in trouble. Most agricultural loans take the form of working capital loans. The bank also provides farm equipment financing such as financing the purchase of tractors.

In 2008, Monte Dei Paschi acquired Banca Antonveneta, one of Italy's larger banks to become the third largest bank in Italy. We don't know yet whether the acquisition was a sensible one. Usually, when an organization with strong DNA takes over a weaker entity, it is the weaker entity's investment story that survives. Another reason why the acquisition might not have been sensible is because of the customer loyalty of Monte Dei Paschi's customers. More than 80% of the customers have been with the bank for over 5 years- so the bank has a clear fix on the credit worthiness of its borrowers. Antonveneta does not have such a loyal customer following.

Unlike many banks in the recent past, which got burnt or are going to get burnt fairly soon, the bank does not participate much in trading activities. At the end of 2008, the bank had trading assets of €27 billion out of a total asset book of €213 billion. The bank had trading

liabilities of €19 billion. Its core banking portfolio was more than €160 billion. The bank had a trading book loss of €265 million during that year. The bank's loan portfolio is well diversified and of a fairly high quality. We just wonder about the future of the bank- not because of anything that the bank has done but because a whole host of Italian industries are turning more and more uncompetitive. For Monte Dei Paschi, it would have been better if Italy had not been a part of the Euro Zone. The strong Euro is driving sectors like textiles into higher orbits of non-competitiveness. The bank does have a bigish textile loan portfolio. Also, the bank has a dash of construction sector loans which might not perform as the Italian construction falls in response to high government and corporate sector debt. This is why, we argue in the next chapter, for no fault of its own, a company's fortunes might sink because of currency movements and on account of fall in a society's competitiveness. These external factors can change an entity's credit story.

Key Takeaways from this Chapter

At the outset of any potential transaction, a creditor must convince himself that he is taking credit risk in the transaction and not venture risk. Taking on high risk for capped rewards obviously makes no sense. Venture risk does not mean venture capital risk only- it means any transaction where there is no clear visibility of earnings and balance sheet strength.

Obviously a brand new venture which does not have guarantees from strong promoters is not suitable for credit financing. In such a venture, there is limited clarity on project costs and how the costs will be funded in case of cost overruns. The worst case scenario for a creditor, who accidentally ventured into uncharted territories is a half built project in the middle of nowhere. Even if the project is completed within cost, the visibility of earnings of a new product is low. An analyst cannot estimate the elasticity of demand for different pricing points. Credit financing of new ventures makes sense if the debt has sovereign guarantees or is backed by very strong parents.

Just because a company is suitable for credit financing, it does not mean it is financeable for ultra long tenures. The length of the tenure varies from company to company and is dependent on the credit story of the entity as we will discuss in the next chapter. Obviously the faster the technology changes in an industry and the lower the barriers to entry, the shorter is the period for which revenue is visible with reasonable certainty.

Companies which take on huge market risk (whether it is currency risk or interest rate risk) might not be suitable for credit financing because of the uncertainty in revenues/costs. The more the mismatch between currency of revenues and costs, between currency of assets and liabilities, the more the equity cushion needed to provide creditors with the comfort they require. Likewise, deep asset liability maturity mismatches can expose a company to the risk of insolvency- hence such structures can usually support very little debt. Questionable structures which have deep conflicts of interest are also not suitable for credit financing.

Chapter 2 What is the Credit Story?

A company does not function in isolation, churning out the returns in its income statement by using the assets on its balance sheet independent of happenings in the world around it. The value of the assets on its balance sheet, linked to the income they can produce, depends on the changing dynamics of global business. Companies which operate in countries which facilitate business always start at the starting point with an advantage. Also, companies can flourish in an atmosphere where ecosystems of research and development and government facilitation through creation of an appropriately trained workforce and a world class physical infrastructure exist. Because of various inter linkages, one can't pretend to have understood a company unless one has understood the company's credit story (or more generally the company's investment story of which the credit story is a subset). Merely looking at the company's current financials informs you only how the investment story evolved in the past, not how it is likely to play out in the future.

At the heart of understanding the credit story of a company is getting a full grasp of how a company makes money now (after all, it is not a God given right) and evaluating why it will continue to make money in the foreseeable future. A credit story is not a static one. It a soap opera- of colorful changes, new competitors coming in, others going out, countries and principalities rising and falling and new trade regimes challenging the company's ability to make profits. Regime changes on the currency exchange rate front, due to fall in a country's investment story, impact companies operating in that country. Technology changes can convert a joyful credit story into one with disturbing uncertainties. And there is no point groping for a credit story in industries in which technology changes happen too rapidly. Creativity of a company's management in developing new revenue streams through changes in its business model can alter a company's investment story. New regulations might come into force which might either hinder or facilitate a credit story.

While developing an understanding of the credit story of an entity, the only things an analyst should not do are betting against human ingenuity and believing in investment stories which have a “perpetual motion machine” flavor. Beneficiaries of human ingenuity will keep changing. In fact, technology changes on account of human ingenuity disrupt the credit story of the incumbents.

During the course of a company’s investment story, it might pass through the venture phase, the credit phase and finally the vulture phase (when the company’s carcass is torn apart in a bankruptcy or liquidation court). The creditor must ensure that he is involved with a company in the correct phase and not accidentally walk into the venture phase or the vulture phase on account of an improper understanding of the company’s credit story. Unlike the fabled Schrödinger’s cat which could be dead and alive at the same time, a company operates clearly in one of the three phases at any point in time. The credit analyst’s role is to get the call right on which phase the company is in and to estimate for how long the company would continue to be in that phase. There is no inevitability to the company moving from the first phase to the second, nor from moving from the credit phase to the vulture phase. And companies can also move back from the credit phase to the venture phase. Silicon Valley is there to testify to the fact that companies can go straight from the venture phase to the vulture phase. But calling the end of the credit phase of a company is crucial- else, when the clock strikes twelve, the creditor could be left holding a non performing loan when the credit story has turned into pumpkin.

The credit story is based on hard facts. It must rest on solid ground and not based on the assumption that the company’s competitors will forever be incompetent or flat footed. In fact, it is everything that a typical equity research report of an investment bank is not. With due apologies to Shakespeare, an investment bank’s equity research story is usually a tale told by an idiot, full of sound and fury, signifying nothing. There is a lot of hope and hype built

in. The story is usually built around aspirations and assumptions that contort common sense. It has everything to do with pumping up a company's stock price and very little to do with prosaic reality. Since the creditor does not get a share of the upside if any of the hopes of a venture investor turn true, there is absolutely no incentive to chisel the credit story around anything but hard facts and a conservative estimate of likely future earnings. This is based on identifying the drivers of the company's earnings and how those drivers could change over time.

In the past, creditors could rely on the pace of change of a company's credit story to be slow. Technological changes were slow. So, a creditor who was slightly slow in picking up the signals of imminent change always had the time to recover. That will not be the case in future. Changes to the credit story can happen really fast. In 2001 American futurist Ray Kurzweil propounded the law of accelerating returns. The law implies that returns (such as increase in speed of a micro chip or decrease in its price) would not increase at a linear pace but at an accelerating pace. According to him the progress in the hundred years of the twenty first century would be like 20,000 years of progress at today's pace. As an extension, one can argue that the moment a particular level of momentum builds for adoption of a particular way of doing things or acceptance of a particular technology (say battery operated cars), the pace of change accelerates at an accelerating pace. This accelerating pace can change credit stories so fast that a non-alert investment analyst would risk missing the whole plot.

Change in a Country's Story

An individual company's fortunes are linked to the rise and fall of countries they operate in, the changing trends in the country's competitiveness and the country's future prospects. An exporter's prospects are correlated to the prospects of the country it exports to, its debt levels, its demography etc. So companies are exposed to risk factors over which they have no control. It is a must for the credit analyst to get the big picture of a company's operating

environment right before delving into the finer details of drivers over which the company has control of.

Israel's Teva Pharmaceutical: Well positioned to gain from deteriorating Government Finances

In 2005 the United States passed the Deficit Reduction Act. The efficacy of the Act is there for all to see- government spending has spiraled out of control in bailing out uncompetitive and possibly crooked companies. All of the US' financial troubles have their origin in the outsized household debt of the country. The high household debt, fuelled by easy money policy of an incompetent central bank also caused increase in demand for goods and services, increased corporate profitability, higher home prices, high property tax collection and higher capital gains tax collection for the government. The tide reversed when household debt hit unsustainable levels causing defaults on loans and securities and causing the need for bank bailouts. It also means lower future private spending, lower demand for goods and services and hence lower corporate profitability, higher unemployment, and lower tax collection from employment as well as gain in the value of capital.

The situation becomes grimmer when one considers the percentage of population that is drawing close to retirement, requiring heavy support for social security and Medicare programs. With minor modifications, the story is almost the same in countries such as the UK, Spain and Ireland. In France and Germany, supporting aging populations will sap the health of government finances. This means that governments in Europe and the United States are going to have a no holds barred fight against health care inflation.

The crisis is so deep that usual government populism and hiding from the truth for as long as it is possible is no longer a viable option. Gold plated health care would be out and high networth individuals and not governments will underwrite the development of new drugs. Whatever shape health care reform takes, there will be open hostility to sale of high priced

drugs which have marginal benefits. Governments themselves might play rough, ignoring property rights from intellectual property and come on the side of generic drug makers. And in a hostile environment, judges might also put their stamp of approval on nasty government maneuvers. The creditors of General Motors and Chrysler had a first hand experience of what happens to contracts when a government is determined to achieve a particular outcome. And when the populace is roaming the city square with pitchforks, the General Motors and Chrysler event demonstrated, relying on the courts is of precious little use. And the populace and the governments in developed countries are going to get even more hostile to big pharmaceutical companies. The US President Barrack Obama, not exactly a champion of property rights, at least not in the form that existed historically in the country and responsible for her greatness, summed the issue neatly as follows- “if there’s a blue pill and red pill and the blue pill is half the price of the red pill and works just as well, why not pay half the price for the thing that is going to make you well?” Probably the US government will encourage mild abuses of the Hatch Waxman Act passed by the US Congress in 1984 which states that generic drug makers can start producing copies of a drug if they prove its patent to be unenforceable. The US health-care reform bill of 2010 has set aside about \$500 million a year for “comparative effectiveness research” for identifying ways to reduce health-care costs based on effectiveness of a dollar spent. If a generic drug works as well as a branded drug, generic drugs would be encouraged.

Enter Teva Pharmaceuticals of Israel, the world’s largest maker of generic drugs. In 1998, Teva obtained 22% of its sales from Israel. By 2008, only 4% of its sales came from Israel, while North America and Europe accounted for almost 85% of the company’s sales. The company had twice the sales volume of Mylan, the second biggest player in the US generics market. Teva was incorporated in 1944 in Israel, and is a successor to companies that trace their past to 1901. Generics accounted for 73% of Teva’s sales in 2008 and a source of

comfort to its creditors. The company has an impressive R&D set up which besides helping it develop its non generics business is also responsible for its well stocked arsenal of ANDAS, Paragraph IV filings (a new drug filing with the US' Food and Drug Administration submitted to the regulator for approval). In 2004, Teva filed an application to produce a copy of Novartis' blood pressure drug Lortel using the Hatch Waxman premise of non enforceability and won the case. In 2007, the company launched a version of the drug. That, in a gist, sums up Teva's model.

Big pharma is fighting back by entering Teva's domain of generic drugs. In their own domain, they have been having very limited success thanks to the inability of big bureaucracies of these companies from coming up with anything original. GlaxoSmithKline set up a partnership with Indian generics company Dr. Reddy's Laboratories while Japanese drug major Daiichi Sankyo took over Indian generic maker Ranbaxy in 2008. In early 2010 Pfizer tried to take over German generic drug maker Ratiopharm. Teva, which had also bid for the German company, as did Iceland's generics maker Actavis, ultimately won the bid. These feeble half steps are no match to prevent Teva from powering ahead and creating the legal machine required as the pharma battles of the future are as likely to be fought in the courts as in the R&D labs. Another tactic increasingly being used by the big pharma companies is the use of "pay for delay" wherein the drug companies pay generics to delay launch of competitors to their drugs which are coming off patent. This does not hurt the producers of generics.

Teva's model does have risk. The big pharma companies might develop next generation extension of existing products with claim of increased benefits to users of drugs. That would reduce the sale of generic products. Also, because of their huge financial muscle, they can enter into arrangements with managed care companies and health insurers to reduce the economic incentive to purchase generics. Small generic companies are particularly

vulnerable to this. Also, a significant percentage of the company's business emanates from a few US retail drug chains and managed care companies. These businesses are consolidating, which increases their bargaining power vis-à-vis suppliers.

The legal risk aspect of Teva's business has a venture risk dimension to it, particularly the selling of generics before the resolution of pending patent litigation. If a court case is lost, it translates to payments to the patent holder for lost profits and royalty on sales of the infringing products. This can cause sharp fluctuations in earnings from year to year. Our guess, without knowing the details of the company's insurance agreements and insurance counterparties, and with access only to the information provided in the Form 20F filing with the SEC, is Teva needs to get its debt to half its current levels (total debt at the end of 2008 was \$ 8.5 billion). Then, it can set to conquer the world of pharmaceuticals peopled with companies sporting yesterday's business models. The conquest should be less by acquisitions funded by debt (followed potentially by write down of good will) and more by using its military style disciplined execution in the courts and in the R&D labs.

The USD – DM Rate between 1947 and 1987 and Bavarian Company Competitiveness

Exporters everywhere fear the strengthening of their domestic currency. There is of course the minor reason of lower profitability in the home currency when foreign earnings are translated into the coin of the realm. The main reason is the fear of loss of competitiveness to producers whose home currencies are depreciating. This fear is misplaced. Certainly, from a creditor viewpoint, the ability to survive an environment of strengthening domestic currency provides an indication of competitiveness that no amount of analysis can supplant.

Companies in countries with strengthening currencies need to run to stay in the same place. This makes the companies pay very close attention to costs, inculcating in them such discipline that makes them super competitive. No country reached great heights by debasing its own currency to stay competitive.

Consider the super competitive Japanese auto makers Toyota and Honda. From the end of the Second World War these companies have witnessed continuous appreciation of their home currency with respect to the currency of their leading export market, the United States. That meant the companies needed to focus on reducing costs such as costs of manufacturing defects, after sales warranties etc. Because of that challenge these companies had a complete focus on quality, which the US car makers under no pressure ever worried about. The US car makers got fatter and less competitive by negotiating horrific contracts with unions. In 1949, 360 Japanese yen were required to buy one USD. By 1978, that number had fallen to 211. Yet Japanese car makers were only just warming up. Post the Plaza accord in 1985 when the leading industrialized countries agreed to permit the USD to depreciate, the Yen rose to 128 to a dollar. Finally, this inexorable march of the Yen caused the currency to hit 80 to the USD in 1995. Of course, by that time the Japanese car makers had set up manufacturing units in the United States which provided added flexibility. In all these currency regimes, Toyota and Honda remained profitable. After that, when the Yen depreciated somewhat, these super competitive companies became super profitable. Perhaps, if instead of weakening, the USD had appreciated, the US auto unions and steel unions might not have gotten control over US manufacturing and the history of German and Japanese manufacturing might have been vastly different.

The German state of Bavaria is home to some very competitive firms such as automaker BMW and the multinational manufacturer of capital goods Siemens AG. Germany has had a reputation of being an exporting giant. At the heart of this machine lies Bavaria and its super competitive companies. Germany's legendary SMEs needed to innovate continuously to stay competitive in an environment of rising currency and rising wages (at least till the mid 1990s). The exchange rate of the German currency, the Deutsche Mark, was fixed at 4.2 to the dollar in 1949. The currency stayed at that level till the end of the 1950s. In 1970, the

average annual exchange rate was 3.65. From there started a strong march of the Deutsche Mark, culminating in the currency hitting a value of 1.5 to an USD in 1996. Even service companies do well in an environment of gradually strengthening currencies. Munich based reinsurance company Munich Re has to invest its insurance premium in fixed income and equity instruments of various German companies. The value of those investments stays high when the companies themselves are doing well. A gradually strengthening currency keeps the companies on their toes and brings a happy outcome to those who invest in those companies.

If China wants to produce great companies, ones which are not funded through bank non performing assets or environmental depredation, the country should stop purchasing US dollars and gradually allow the Yuan to appreciate. And when Chinese banks direct their credit to such companies as opposed to uncompetitive state owned entities, the problem of the country's non performing assets will solve itself. Though Indian software companies are very profitable, they were involved in fairly low end activities because a depreciating currency, till the early 21st century, did not put pressure on the companies. They could be profitable just by doing extraordinarily ordinary stuff. It was only when the Indian Rupee started appreciating in 2003, for the first time in many- many years, did the software companies take a relook at their business models and made some radical changes. From a creditor viewpoint, companies which have survived sharp appreciation of their domestic currencies are always a good bet. Profiting from a depreciating currency does not ensure future well being of the company.

The Biker who asked you to go long on Zimbabwe in 1996 and China now

Ultimately, the credit story is what explains past and current profitability and the likelihood of persistence of that profitability in future. When one gets the big picture of the story wrong, as the investment biker who calls commodities hot is on China, focusing on individual

Chinese companies (particularly its banks) is dangerous. The big picture is that of an economy that is badly deploying the savings of its citizens, kept in bank deposits, on low return projects and state owned entities under the diktat of a tyrannous and murderous regime. People assume that the biker is an investment prophet based on his scintillating investment record from the very distant past when the biker was a spring chicken and based on his books which provide unvarnished enthrallment to one and all. His fondness for nasty regimes is almost a fetish. In 1996, the biker asked investors to go long on Zimbabwe. We wonder if he knows the current exchange rate of the currency of that wretched country on the black market.

There is another aspect of the China story which people seem to be ignoring. China has been buying hot commodity mines all over the world by cutting unsavory deals with local thugs who masquerade as the national government. To us, it seems the money was ill spent. It is highly unlikely they will be able to mine the ores against the wishes of the natives. More likely, the unhappy natives might start shooting arrows at the juicy part of the rear of the Chinese stationed there forcing them to make a quick exit. It is pointless under such a scenario to rush to the neutered court at The Hague for enforcing contract law. More likely, the natives would at some point do to the despot what the wretched people of Romania did to their godless tin pot dictator in the late 1980s after enduring four decades of tyranny. And the climate of the 21st century is distinctly unpropitious for rushing in heavy boots to rob other people's resources as Uncle Sam found to its cost in Iraq.

No one can have an iota of doubt about the genius of the Chinese people. But making flimsy contraptions for Wal-Mart by employing humongous amount of capital is a serious wastage of people's talents and the people's bank savings. Exports are necessary because, as Nobel laureate Paul Krugman put it, foreign suppliers of imports (such as crude oil) are crass enough to demand that they be paid. But storing the results of exports in reserves that are

liable to being repaid through “quantitative easing” is a blunder of elephantine proportions. The credit crunch of 2008-09 drove more money towards gigantic state owned entities and killed the few companies which could have redeemed China in the long haul. The China model will collapse for the same reason that the Soviet Union did- poor return on capital employed on account of central planning that relies on the benevolence of the butcher or the brewer for dinner.

Game, Set and Match: The end of the Starbucks Credit Story

The US retailer of specialty coffee Starbucks came into existence in 1985, almost coinciding with the birth of lazy central banking and easy money policy. It also marked the onset of the era of low savings and high household debt which ended in 2008. For the year ending September 30 2008, most of Starbucks’ sales came from countries with high household debt. And the Starbucks brand value is strictly linked to how profligate a consumer could be before reality catches up.

From the 1980s, the US society became an aspirational one- not in the usual sense that the term is understood. The citizens did not aspire to create wealth or have savings for the rainy day like the rich. Rather they aspired to consume like the rich. Easy money policy of the central bank and easy and irresponsible handing out of credit cards to those addicted to consumption were the fuels for this lifestyle. There were few assets against which one could not borrow and then borrow some more. This crazy consumption cycle created its own boom- stock prices went up- values of pension assets went up, which created the illusion that you did not have to save for retirement or for children’s education. The assumption was that the stock market would do the saving for one. Somehow the argument did not strike people as circular –even now after the bubble has burst. People are still not convinced that their lack of saving and crazy consumption was driving corporate profitability and stock prices- not a new paradigm that the Maestro concocted.

In this debt fuelled consumption binge, few companies profited as much as Starbucks did by promoting coffee as a symbol of having arrived in life, just as few countries profited as much as China did by purveying trinkets to the American consumer. China got a worse deal out of the whole game - Starbucks got paid in the currency of its shareholders.

Starbucks in its annual report of 2008 listed a whole host of risk factors as SEC Form 10K filings are wont to do. There was talk about hedging the risk from volatility of coffee and dairy product prices. But is Starbucks really exposed to such risk? If the US household debt was to fall sharply by some miracle, people might come back for the “Starbucks experience” and the company would be able to pass on high commodity prices to consumers. Likewise, competition from cheaper suppliers of coffee could have been ignored when home equity lines of credit were available. If US household debt stays as high as they are at present, Starbucks needs to come up with a radically different strategy to survive in the long run. Tinkering with latte prices would be of very limited use as would improving productivity by getting the baristas to prepare coffee by following a certain process sequence. It is time to sing the requiem of the Starbucks credit story. The company moved from the credit phase back to the venture phase the moment US household debt spun out of control.

Cement Companies are a leveraged Bet on a Country’s Household Debt and Demographics

When limestone and clay are heated to high temperature in a rotary kiln, the cement manufacturing process results in the creation of a semi finished product called clinker.

Clinker can be more readily transported as it does not absorb moisture like cement. When gypsum is added to the clinker and grounded, the product is the traditional Portland cement.

An interesting aspect of the cement industry is how far the cement company headquarters are from the centers of future demand. Three of the four biggest cement companies are west European, where demand is unlikely to pick up in the near future, if ever. These companies

are French company Lafarge, Swiss company Holcim and German company Heidelberg. The other company that completes the quartet of the largest cement producers, Cemex, is headquartered in Mexico. Lafarge, founded in 1833 supplied lime to the Suez Canal project in 1864 and is a pioneer of white Portland cement. Holcim, started cement production in 1912 and used to be called Holderbank AG till 2001 from the village in Switzerland where the company was originally based. Heidelberg was founded in 1874, while Cemex commenced operations in 1906. Poor demography and unsustainable societal debt are the causes of likely poor demand for cement in Western Europe. That is also the case in Japan- hence the parlous state of finances of the country's cement manufacturers including leading players like Taiheiyo Cement Corporation.

The big cement companies are gravitating towards demand centers like China, India and other emerging markets, either by commencing operations there or by taking over local companies. Holcim took stake in Huaxin Cement Company Ltd in China and bought out two big Indian cement producers- ACC and Gujarat Ambuja. Lafarge made a big acquisition- the acquisition of Orascom which increased its reach in the Middle East and Africa. Cemex operates in several emerging markets including its home territory. Heidelberg entered China in 1995 and operates in Guangzhou and Hong Kong. It entered India in 2006 with the acquisition of Mysore Cement.

Over the last two decades, cement demand expanded by 5% annually on the back of easy money policy and expansion of household debt in many developed countries and fundamental changes in the developing countries. When the day of reckoning came, cement demand collapsed in countries with high household debt. Holcim reported sharp drop in sales in Spain and the US in 2008 after the real estate bubble burst and household debt hit unsustainable levels. The company shut down plants there.

Cemex, which is heavily exposed to the US, the UK and the rest of Europe struggled to repay borrowings. Within a space of less than a year, in 2009, S&P downgraded Cemex's debt by 6 notches, which includes a 5 notch downgrade at one shot. The agency clearly was caught napping. The company had been rated investment grade at the beginning of the year. The folly of looking at credit analysis through the narrow prism of immediate corporate profitability, while ignoring extensive exposures to leveraged countries failed to strike S&P as odd. Sensibly, the company sold its operations in Austria, Hungary, Italy and other low growth markets- but these divestitures were done at the worst possible time in terms of cash obtained from sales. Lafarge, though not as badly exposed, got more than 60% of its sales from Western Europe, North America and the Middle East while obtaining only 11% of its sales from Asia. While its west European and North American sales plummeted, its India sales were up 22.3%. As this turmoil was underway, cement operators in emerging markets had a jolly good time. Return on capital employed (RoCE) of one of the leading Indian cement manufacturers, Ultratech Cement, after being above 40% for a few years fell close to 30% in 2008.

While a low household debt is not a good indicator that good times lay ahead for cement makers in the country, a high household debt inevitably signals bad times are around the corner. The problem is one just can't predict exactly when the bad times will start- so it behooves a creditor to start getting cautious when household debt levels starts climbing. Also, in 2008, Venezuela nationalized its cement industry and compensated the private investors a pittance. The Venezuelan subsidiary of Cemex which controlled more than 50% of the local market was most affected. Holcim also suffered. Since the future of the cement industry is in emerging markets, creditors should be aware of "tin pot dictator" risk that is going to be ever present in the industry.

International Trade Agreements, Trade Wars and the Credit Story

The world is getting closer and closer to a free trade regime despite numerous bumps on the way. Companies whose business models rely on keeping low cost producers from their borders are not likely to survive long. But in the short term, even companies in countries which stand to benefit from the demise of quota norms and norms to prevent free trade are unlikely to benefit. That is because, in anticipation of the changes in trade norms, many companies, particularly those in low technology industries, expand rapidly at the same time, which can cause prices to crash.

In the twenty-first century, it would be impossible for a creditor to any firm, except those operating in select localized services, to ignore the effect of global trade norms and the likely change in those norms. The good news for the creditor is that there is usually adequate time for him to prepare for the day new norms would come into effect. Liberal trade norms always come into effect several years after the agreements are signed so as to provide all stakeholders adequate time to adjust to the new reality. Despite this, on several occasions, creditors have been caught with their pants down.

European Banana War kills Chiquita Brand's Creditworthiness

“For many years, world trade has been characterized by multilateral arrangements that reduce or eliminate restrictions on the international flow of goods and services. In direct contrast to this trend, the European Union has imposed an increasingly restrictive and disturbing trade policy on the Latin American banana industry in the last several years. This has been the primary cause of significant losses Chiquita Brands International has posted since 1992, following a long period of profitable growth.” This quote, from the President and COO of Chiquita Brands, one of the largest banana producers of the world, in the 1994 company

annual report, sums up the harsh impact that restrictions on the banana trade by the European Union had on the bottom line of the company.

Chiquita Brands International (“Chiquita”) traces its origins to a banana trade transaction in 1870 when Jamaican bananas were sold in Jersey City. The company became a full fledged producer and transporter of bananas in 1899 with the founding of the United Fruit Company (UFC). The company’s name was changed to United Brands in 1970 post a merger and again in 1990 to Chiquita Brands International. For most of its history, the company was profitable though it was often accused of unsavory activities such as bribing Latin American government officials (the banana business seemed to be a magnet for a particular type of business behavior- one of the biggest players in the banana business, Ecuadorian company Exportadora Banarera Noboa, and owner of the Bonita brand had been accused of numerous human rights violations). Chiquita’s business model involved producing bananas in the republics of Latin America and transporting them for sale, chiefly to the countries of the European Union and the United States. The company had the scale to succeed in this capital intensive business- owning land for producing bananas and owning transportation assets to move the produce to end markets in Europe and the US. The scale of operations provides a limited barrier to entry to new comers.

Chiquita owed its nemesis to its slow response to an event beyond its control. In 1975, a group of African, Caribbean and Pacific countries (former colonies of various European countries such as the UK, France, Netherlands and Belgium) formed the ACP grouping under the Georgetown Agreement to reduce poverty among member countries. In the same year, the Lome trade convention was signed between the ACP and the European Economic Community (the forerunner of the European Union) in Lome, Togo. It provided for preferential access to trade in various products produced by the ACP countries for export to the countries of Western Europe. Among other things, it provided preferential access to

European markets for bananas originated in ACP. Germany, the biggest consumer of bananas in the European Economic Community (EEC) opted out of this preferential treatment. Hence Chiquita could export to Germany on equal basis as the ACP countries.

In 1992, the integration of the European Community into a single market was complete. That required all tariff norms be imposed on an uniform basis. In 1993, the European Economic Community passed the council regulation 404/93 which imposed common norms for trade in bananas across all countries, Germany included. The regulation limited the import of bananas from Latin American countries to two million tonnes. The penalty for violating the norms was so stringent that it did not make sense for any company to exceed its quota. This import quota was divided among a number of companies, including Chiquita's Europe based competitors such as UK's Geest plc and Ireland's Fyffes plc.

Chiquita's market share in Europe collapsed and plunged the company into a loss. From a net income of \$ 128 million on sales of \$ 2.9 billion in 1991, the company had losses of \$284 million in 1992, \$51 million in 1993 and \$71.5 million in 1994. The company's debt equity ratio moved up sharply. Because its balance sheet was leveraged, it could not make the investments in ACP countries as its US based competitors Dole Foods and Fresh Del Monte did. An alert creditor to Chiquita should have started rethinking through his investment thesis in 1988 when the EEC started working on the common policy, a policy that would fundamentally change the Chiquita credit story. A creditor focused excessively on the published accounts, ignoring this change in the credit story would have been caught unawares when the company started loosing money.

Things kept getting worse for Chiquita. The last straw was when banana prices crashed in 1999, which severely weakened the company. Finally, in 2001, the company filed for chapter 11 bankruptcy.

The Demise of the Multi Fiber Arrangement benefited no Company but destroyed some

The Multi Fiber Arrangement (MFA) came into existence in 1974 as a measure to prevent textile imports from developing countries swamping the domestic textile companies of the developed world. Labor cost is the key driver of competitiveness in the textile industry- so it would have been impossible for the high cost producers of the West to compete with the textile producers of developing countries. The arrangement imposed quotas on the amount of textile products that developing countries could export to developed countries. There were exemptions from these quotas for the poorest countries like Bangladesh.

In 1994, as a part of the Uruguay round of international trade negotiations, the WTO assigned the role of administering the MFA quotas to the WTO. It was agreed that the MFA quotas would be eliminated from January 2005. So, creditors to companies which would be affected by the changed norms had advance notice to plan out their future lending strategies to the sector.

It was taken for granted that the end of quota regime would benefit to a considerable extent the low cost textile producers of China and to a smaller extent the producers of India.

Bangladesh was expected to loose out, but that did not actually happen post 2005, because the much lower labor costs in the country masked the effect of lower productivity. As expected, producers of Latin America, Eastern Europe, and Turkey were hit and there were large scale layoffs in the sector in those countries.

While some countries such as China gained from the fall of the MFA in terms of higher employment, at least in the short term, it did not translate into benefits for companies.

Certainly, far fewer companies than expected benefited in India. That was because all textile companies in regions which expected to benefit from the demise of the MFA expanded their capacity for the post MFA world. This led to sharp increase in capacity, in addition to the

dead weight investments in the countries that were to loose out under the new regime. The resultant fragmentation and capacity expansion in the textile Industry lead to fall in prices, or prices not keeping up with costs.

A classic company which highlights this situation is India's Arvind Mills. The company was set up in 1931 when India was a big player in the textile market. In 1986, the company decided to focus on the denim segment and to target the international market. Fall in denim prices in the late 1990s caused the company to default on its Indian Rupee debt in 2000. The turnaround in denim prices pulled the company back to profitability in 2003. The company was selling denim to retailers such as Levi's, Gap and Tommy Hilfiger. In 2006 the company expanded its denim capacity and it became the world's third largest denim producer (the largest denim producer is Taiwan based Nien Hsing Textile Company, not particularly renowned for its labor and environmental practices). The expansion caused an increase of its debt to unsustainable levels. Denim prices increased in 2007 and 2008, but it did not keep pace with costs. In 2008, the company, for the second time in a decade, defaulted on its debt. This is what can happen in a fairly low technology and fragmented industry when there is uncoordinated capacity expansion due to changes in international trade agreements. When the capacity expansion is funded excessively by debt, the company doing so might not generate adequate return on capital employed and default on its outstanding debt. What was expected to be a boon in the post quota regime turned out to be an unmitigated disaster.

Another event that happened in the post MFA world was the so-called "bra wars" between the EU and China. By August 2005, Chinese exports of textile items such as bras, pullovers, trousers etc, had swamped the local producers in textile producing Italy, France, Spain and Greece. Some of the EU countries did not permit consignments of these materials from leaving their ports. Of the £ 550 million of merchandise held at the ports of the EU, £ 50 million was meant for British retailers such as Marks and Spencer. Since Britain did not have

a textile industry left to protect, the blocking of merchandise irritated the British. Finally, the war ended when China agreed to freeze further shipment of bras, pullovers etc for the rest of 2005 and agreed to count half the blocked merchandise with the 2006 quota (this was a quota in the post MFA regime between the EU and China for preventing Chinese textiles from destroying the EU producers). Obviously this agreement by the Chinese would have led to bad loans for the lenders of bra producing firms of Yanbu town in the Guangdong province of China. Without incremental revenue from bra sales in the EU, the loans would definitely not be serviced. So, the aftermath of the MFA might be a significant addition to the burgeoning non performing assets (NPAs) of the Chinese banking sector.

The Ryanair Credit Story is due to the advent of the European Union

Low cost airline Ryanair of Ireland contributed €500,000 to campaign for the “yes vote” in Ireland for the Lisbon treaty which promotes closer integration among the countries of the European Union (EU). That is a perfect way for a company to express its gratitude to the European grouping. But for the European Union trade agreements, the company would have been a marginal player in Europe’s airline landscape. Despite small tiffs with the EU like the 2007 dispute over propping up of national carriers and competitors such as Alitalia, Lufthansa, Air France and the row over the issue of the Commission blocking Ryanair’s takeover bid of Aer Lingus (Ireland’s national carrier on competition grounds), the coming together of the European nations has practically been an unmitigated blessing for Ryanair and made the Ryanair credit story possible.

Ryanair was established in 1985 for flying short haul between Ireland and London. The airline went public in 1997 and used the funds raised to build a pan European airline. But that would not have been possible without the 1992 EU deregulation of the airline industry which gave airlines operating in one EU country the right to operate services between all EU countries. Because of this, Ryanair could replicate its low cost Ireland based model across all

EU countries, increasing its financial viability and flexibility. Ryanair got a further boost in 1999, when the introduction of the Euro as the operating currency in most EU countries removed currency risk emanating from translation of earnings outside Ireland into the domestic currency. The ever closer links among European countries promoted weekend tourism from which Ryanair benefited enormously. Finally, the airlines benefited when in response to the recession in 2008, many EU countries such as Belgium, Holland, Spain etc scrapped tourist taxes, thus promoting tourism.

Of course, a lot of credit must go to the airline for taking advantage of the new opportunities. While national carriers were bleeding, Ryanair went from strength to strength. The number of passengers serviced by one employee at Ryanair was 9195. That metric was 652 at German national carrier Lufthansa. Obviously this comes hand in hand with the reputation of poor customer experience. But that does not matter because the company's model is built around carrying passengers on time at the lowest possible cost on time and not around promoting creature comfort. Also, the company financed its airplanes sensibly- a sizeable chunk of planes were financed with loans from the US Exim bank (for promoting the sale of Boeing airplanes). The bank also guaranteed 85% of the residual value of the airplanes.

The EU- South Korea Trade Pact and Credit Quality of Europe's Mid-range Car Makers

The European Union and South Korea signed a free trade agreement in October 2009. To take effect, the agreement must be approved by the South Korean parliament and the EU governments. The trade agreement does away with numerous tariffs on goods originating from either trading block. This is going to put a severe strain on Europe's mid sized car makers, who would now have to compete on a level playing field with South Korean car giant Hyundai. Hyundai is one of the few global car makers that came out stronger after the crisis of 2008. Even when giants like Toyota stumbled in the US, Hyundai started picking up

market share. The company has effectively shed the image of Korean cars being of a lower quality than their Japanese counterparts, as has its compatriot Kia Motors.

The most affected companies from this deal would be Fiat, Renault and PSA Citroen. The car makers in the high end segment like German companies Daimler Benz and BMW will not be affected. Some brands of Volkswagen might be impacted. Mid sized EU auto players were not doing well even before the Korean challenge emerged. But for the tendency of governments in European countries to poke their nose into commercial matters, one could have written the obituary of those car makers.

Free trade agreements can have third country implications. Some India based car makers ship small cars to the EU. The biggest exporters are Japan's Suzuki Motors' India unit and Hyundai's Indian subsidiary. Car makers of Indian origin (as opposed to Japanese and Korean carmakers' Indian subsidiaries) export their wares to less developed countries and not to the countries of the EU. So, the effect of the trade agreement on India could be more in terms of employment and taxation generated by the East Asian companies' operations rather than on individual company credit quality.

Regulations and the Change in a Credit Story

Regulations don't change in a single day. There are enough signs to spy, even for the not too discerning analyst, before actual changes themselves happen. But it does pay to be early in spotting impending changes because once there is an inexorable momentum in the direction of change, many stakeholders would head for the exit door at the same time. While stricter regulations are almost always bad for shareholders, for creditors, regulations can sometimes be a blessing. If stricter asset valuation norms had been prevalent (that is less of the comically vacuous "marked to model" stuff), the creditors to Lehman brothers might have

known the true state of the entity much earlier. The bank would not have gotten as big as counterparties would have rationed their credit limits appropriately.

Smoking Ban in the UK actually helped Pub Operator Mitchells & Butlers

Mitchells and Butlers (M&B) is the United Kingdom's leading operator of managed pubs and pub restaurants. The company played an important role in transforming the mom and pop pub industry of the nineteenth century to one where a chain of pubs operates under a single management and provides a range of amenities. In July 2007 the UK government banned smoking in pubs. This was thought to be the death knell of the pub industry as smoking and drinking beer went hand in hand. Because of this rule, smokers cut short drinking time or did not come to the pub at all. Many small pubs shut shop.

However, M&B did not trip. It started focusing on the customer segment which did not come to the pubs because they were put off by the smoking. The company also improved the food offering. Food at pubs would be cheaper than that at restaurants. Besides, pubs existed in close proximity to high density housing areas. In the first year after the smoking ban, which also saw a severe economic down turn in the UK, M&B's beer sales went down but its food sales went up, despite lower consumer disposable incomes. The company's success in the casual dining segment was proved by the success it had with the pub assets of UK hospitality major Whitbread plc that it bought in 2006. Post the takeover, the company managed higher food sales, that too in a hostile economic environment. In fact, the company was helped by the poor economic environment- diners moved from costly restaurants to pubs.

The company's capital structure is geared towards flogging as much as possible out of the company's assets. At the end of 2008, a bulk of the company's debt (£ 2.3 billion) was in the form of bonds secured by assets and cash flow of the majority of the businesses. Its unsecured loan facility had a limit of £550 million. The secured debt was taken through a

securitization structure wherein most of the company's assets were transferred to a securitization company M&B Retail Limited, which in turn borrowed against the cash flow of the assets and the value of the assets. Because this firm is thinly capitalized (£1.2 billion of shareholder equity at the end of September 2008 supporting debt of £ 2.7 billion), there were very stringent covenants at the M&B Retail level such as minimum cash flow to debt service cover for dividend payments, expenses that must be incurred on capital expenditure on the pubs to prevent cash flows from being generated by reducing franchise value (we are not sure if this covenant is an efficient one), money from disposal of assets to be used exclusively for repayment of debt etc. There is a continuous acquisition and disposal of assets at M&B which should bother a financial analyst- the business seemed to be run strongly for meeting quarterly targets rather than for creating long term value. We worry that this financing structure, despite the sound business model, might collapse if the economic downturn becomes deeper. A creditor must also wish the company had far lower debt on its balance sheet so as to improve its financial flexibility.

Repeal of the Glass Steagal Act and the retooling of the Bank Credit Analysis Framework

When the Glass Steagal Act of 1933, which separated investment banking from commercial banking, was repealed in 1999, creditors to the banks should have gone back to the drawing board to assess the impact on individual institutions. It was not a signal to get away from being a creditor to the banks- whether commercial banks or investment banks. It was merely a signal to the credit analyst that the credit story had changed and that the analytical framework he had been using for the last several decades was now obsolete. Retooling was necessary. The analyst had the following information at his disposal for the retooling process- the reasons for the Act coming into existence in the first place in 1933 and the history of the years prior to the Act coming into force.

The drama of the 1920s was reenacted during the first decade of the twenty first century. You might have a new instrument here and new structure there but the underlying theme was using as much leverage as possible to magnify investment returns. The players had changed-rating agencies were not a potent force then. But the game remained the same. A reader would have been hard pressed to identify the era of John Kenneth Galbraith's classic book "The Great Crash, 1929" if a few names had been masked.

Cap and Trade Emission Norms and impact on Credit Quality of Electric Utilities

The aim of the cap and trade emission norms is to cut emission of carbon dioxide (CO₂) and other greenhouse gases. Whether global warming is real or a temporary phenomenon, the consequences, if real, are too cataclysmic to make decisions within the expected loss – expected gains probabilistic framework. The construct for such problems is the Pascal's Wager paradigm. To refresh a reader's mind, the Pascal's Wager was propounded by the great French mathematician Blaise Pascal. In summary, it states that an unbeliever's gamble in leading an ill-spent life is not a prudent one because the consequences have an eternal dimension to them if God existed. Because of the nature of the consequence, it does not make sense to use the expected gain-expected loss framework for the conduct of one's life. In the Pascal's Wager framework, while it is truly joyful to believe as a believer, skepticism does not pay. The burden of proof is on the skeptic and even little evidence should suffice for taking concrete actions. In the expected loss-expected gain space, "skepticism is the chastity of the intellect and it is shameful to surrender it too soon". This is not true for Pascal's Wager problems. You would not use the expected gain – expected loss framework to analyze what you should do when someone shouts "fire" in a crowded theater. Nor would you use it for your retirement investing decisions if your retirement is just a few years away.

The aim of all countries in the global emission negotiation has been to pass the sacrifices required to curb emissions to other countries. This is particularly true of the big emitters on a

per capita basis. From a credit analysis stand point, the analyst has to answer only one question when analyzing a company- can this company pass on to customers the increased costs of complying with the increased regulations. And the answers might not be straight forward. For instance, at first blush, it would seem that an electric utility company should be able to pass on all costs to its consumers. That is true only if all the utility companies pumping power to an electric grid are CO2 intensive such as coal fired utilities. What if a sizeable fraction were from renewable/ nuclear sources, whose high capital costs have been sunk and who have low operating costs. Such firms would not have increased operating costs due to the emission norms. In fact, instead of having higher costs, they might end up having lower costs due to new regulations which encourage such sources of power. If the carbon intensive power plants raise the grid tariffs commensurate with the increased costs, they might find themselves lower down in the merit order for dispatch of power to the grid and their power would be used less. So, in the case of the utility industry, the analyst must not only assess the extent of low carbon sources of energy in the grid at present, but also forecast the number of such producers that are likely to come up in response to the carbon curbing initiatives in the next few years, the lead time for such plants etc.

Change in the Industry Story

Industries can disappear from the face of the earth on account of human ingenuity. Cell phones wiped out pagers in such a short period of time that creditors to pager companies might have wondered what hit them. Only companies that are quick to respond to the changes and which appropriately hedge their bets would survive such cataclysmic changes.

In industries where technology undergoes rapid changes, creditors just don't belong. Even technology visionaries get it terribly wrong- what chance does a credit analyst, even if he is conversant with the technology, have? For instance, in his 2000 book "Telecosm", technology visionary George Gilder lists out nine stars of the telecom industry. Half of those

companies are now bankrupt, either due to technology change or due to overbuilding. His prediction that infinite bandwidth would revolutionize the world turned true. But translating that broad vision into individual company credit quality is practically impossible. And Gilder is one of the better technology visionaries- his predictions in his previous book “Microcosm” on the future of the world of microchips was almost spot on. Little wonder that even great investors like Warren Buffett do not take calls on technology.

Consider the Smith Corona company, once one of the biggest manufacturers of type writers in the United States. The company was founded in 1886 and had numerous typewriter improvement techniques to its credit throughout its long history. In the mid 1980s the company’s sales started falling due to the introduction of PC based word processing. The initial cost of a PC was high, but the benefits of the word processor were there for all to see. By the early 1990s, PC prices were falling and more and more powerful processors came to the market. It was only then that the company came to terms with the new reality and entered the PC market- but it was too late. The PC industry had become highly competitive. Even at that late date, the company felt that the typewriter had an important role in the market place. Finally, in 1995, the company filed for bankruptcy.

Creditors should also be wary of companies that give away the magic beans of their technology for an immediate cash cow. Italy’s Alenia Aermacchi gave Brazil’s jet airplane maker Embraer access to the jet plane technology. Embraer is now a formidable player in the civilian airplane game- where as few have heard of the Italian company. A couple of decades later, China tried to grab the technology from Embraer. The company opened a factory in China in 2002 in a joint venture with a Chinese company, but Embraer, out of fear of losing control over intellectual property, planned to build only older models under the joint venture. China is insisting that Embraer produce only new models- one should watch out of if Embraer is prepared to forego China or is prepared to part with the key drivers of its credit

quality and shareholder value. One of South Korea's automobile manufacturers, SsangYong Motor Company (SMC), got into financial dire straits in 2000. In 2004, Chinese car maker SAIC bought a 51% stake in the company. SMC's employees claimed that SAIC stole its technology and did not fulfill any of the promises it made when taking the stake. Ultimately, the company filed for bankruptcy in early 2009. Similar things might happen when Indian and Chinese firms try to takeover stretched European firms with strong technological base. European governments might permit such takeovers so as to ensure jobs are saved. But there is no guarantee, after absorbing the technology, the companies would not shut down their European operations and be freed of the hassles of unbearable employee benefits.

Credit Financing to the Studebaker Corporation in 1900 AD

General Motors owed its glorious run till the seventh decade of the 20th century to the vision of its founder William Durant. He was associated with the largest horse carriage producer in the world. He realized that the industry story was changing and bought early automobile maker Buick in a bankrupt condition (a lesson for creditors never to be a part of early ventures and leave it to venture capitalists) and combined it with other auto acquisitions to lay the foundation of a business that was profitable even during the Great Depression.

During the transition, the new product that evolves and would supplant the former product does not even have a proper name- the early cars were known as horseless carriages.

Whenever nameless wonders come on the horizon, the creditor should be acquainting himself with the new technology and at what price point it might supplant the existing product. Just because early models of a new product seem too expensive, it does not mean the lender can be complacent. All that might be required is a small change in technology or the entry of a player who drives prices down and thus increases the volume of sales. When the volumes hit a certain critical level, the change would acquire a momentum of its own (Ray Kurzweil's accelerating returns), driving down prices further- witness the speed with which cell phones

moved from being a luxury item to an essential one within a decade. All that the automobile industry required to change the industry story in the early twentieth century was the appearance of Ford Motor Company's Model T.

The Studebaker Corporation moved with remarkable speed the moment the whiff of viability surrounded the auto industry. The company was incorporated in 1868 to produce wagons for farmers and the military. While the wagon business was still doing well, the company entered the automobile industry in 1902 with an electric power train. Obviously, that venture was not successful as batteries were even more primitive than the batteries of a century later and which are yet to cross the viability threshold. Unlike other carriage companies which did not hedge their bet by participating in the action of the new technology, Studebaker experimented with the new technology. Till 1911, the company persisted in the manufacture of electric cars. Again, it did not do this in an unhedged fashion- from 1904 the company started making gasoline powered cars in alliance other companies. In 1911, after taking over the facilities of one of its former partners, the company entered whole hog into the gasoline car industry. The company did not leave weak flanks. The Model T was only just beginning to establish the fact that the automobile industry was no fad and that it was the future of transportation. Studebaker thought that the automobile would be complementary to the horse carriage-so it was only in 1919, a whole decade after the Model T made its appearance that Studebaker ceased to make horse drawn vehicles. It is easy to jump to wrong conclusions about the future of technology- hence it is wise to be fully hedged. In 2001, Steve Jobs announced that the future of transportation was the Segway Personal Transporter. Almost a decade later, it turned out to be an over hyped and undersold concept.

The sequence of events in the Studebaker story is exactly the sequence a creditor would like to see a company adopt when it sees new threats appear- no matter how distant- in the horizon. First, the company should not jump to the conclusion that the changes in the

industry are a passing fad- it should keep a watchful eye on the new developments at the senior management level so that if any decisions have to be taken, they can be taken very fast. Secondly when there is a change in an industry credit story, it is difficult to grasp the direction of plot of the new industry story. Which technology would be the new industry standard? Would the new car be gasoline powered or electric powered? So, the best course is to hedge bets, usually in alliance with other companies. Otherwise the cost of hedging bets would be prohibitive. Finally, the old industry business might still throw positive cash flow for some more time and there is the possibility that the old part of the industry might never get supplanted. Studebaker persisting with the wagons for some more time made eminent sense. Only when the old business becomes a dog and the direction of the industry very clear, the old business has to be discarded.

Over the next three decades, Studebaker gradually became complacent. The company thought it was doing a smart thing by paying workers and retirees too high- that wrecked the company's cost structure. Keeping unions happy or coddling them is never a good idea. The aggressive financial discipline of General Motors and Ford left Studebaker far behind. The giants of the industry had built tremendous scale which Studebaker lacked. Cost cutting and strikes came later- but it was too late to save Studebaker. The company closed shop in 1966. How the creditors should have spotted impending trouble at Studebaker is a totally different tale.

At what Point does backing Proprietary Technology turn Stupid? The Silicon Graphics Saga

In the world of technology there is a perpetual battle on between proprietary technology and open source standards. Open source company Red Hat gives away its product- the Linux operating system, and generates revenue through selling support services and extra tools. For fiscal year ended March 2009, the company had revenues of \$653 million and net income of \$ 79 million- it is the only company making money out of open source. MySQL built a data

base software application with volunteers. In January 2008 the company's founders sold the company to Sun Microsystems.

One cannot declare unambiguously whether a company persisting with proprietary technology is good for creditors or whether it is better to back a purveyor of cheap open source technology. The point at which it is a must for a maker of proprietary technology to back off and revisit his strategy is when the cheap technology is as technically capable as the proprietary technology and the cost of shifting to the cheap alternative is low. When that happens, if a company does not have a plan B, it is time for the creditor to disengage, and if necessary, force the company into bankruptcy so that asset values can be preserved to some extent.

Another parameter a creditor should not be betting on is which of competing technology formats would become the industry standard. For instance there was a format war over the industry standard for high definition optical discs. The battle was between Sony's Blu-ray Disc and Toshiba's HD DVD format. Sony eventually won but a creditor to Sony would have relied on the fact that Sony has numerous sources of cash flow and the expenses associated with developing the new format could have been written off without causing deep harm to the company's balance sheet. He certainly should not have been betting on the possible victory of the Blu-ray format.

Silicon Graphics, founded in 1981, was the top dog in the three dimensional graphics computer industry and a leading pioneer in the industry. The company played a key role in animating such blockbusters as Jurassic Park. When the company started its operation, the 3D animation business was in its infancy. The personal computers at that time did not have the processing power to create animation and Hollywood relied on Silicon Graphics' powerful graphics workstations. By the mid 1990s, the story began to change. Personal computers were becoming powerful enough to do complex graphics, tasks that could earlier

be handled only by UNIX run workstations of Silicon Graphics. Silicon Graphics persisted with its systems, not offering PC based systems before the game was lost. Outside its niche operating area, competitors such as Sun Microsystems were emerging, who could provide workstations and servers for large corporate networks. And players like Hewlett Packard introduced 3D graphics workstations that were cheaper. At that point, Silicon Graphics should have re-looked at where it was going.

Instead, so lost was the company in its previous successes, it was oblivious of the fires raging around it. It started getting into unrelated areas, proof if anything else was required that it was time for all investors- creditors and shareholders to bail out. The company got into interactive TV just when the technology was dying and the internet was taking over. It took over Cray Research, the famous maker of supercomputers just when supercomputing was being supplanted by parallel computing. To compound the company's woes, its top management was involved in high profile government activities and other miscellaneous pursuits.

The lesson for all is that the tipping point of a company's story occurs when its proprietary technology gets more expensive than cheaper substitutes and the switch to the cheaper substitutes could be made without incurring too much cost. Bad capital allocation decisions merely hastened the arrival of the day of reckoning at Silicon Graphics and were not the cause of trouble. As is the habit of companies in trouble, the company changed its name in 1999 to SGI and also changed its logo. In 2000, the company sold off its Cray business for around \$ 100 million – a unit for which the company paid \$ 740 million just four years before. The company chugged along till 2006 when it filed for bankruptcy to reduce its debt by \$ 250 million. It emerged from bankruptcy protection in late 2006, only to re-file for bankruptcy on April 1 2009. In May of that year, the company was sold for \$25 million. If

only the company had been shut down at least a decade before, the creditors would have fared far better.

How will the Auto Credit Story pan out?

We do not know how the car of the year 2020 will be powered, much less what the car in 2030 will be like. We do know that companies which back the losing technology will suffer considerable pain, if they survive to tell the tale. Size is no guarantee against change- in fact the bigger car makers with more of their capital invested in the wrong technology will suffer massive writedowns. It is the horse carriage- car story all over again. The issues are just too many. Firstly, will battery powered cars get more affordable? Or would a superior variety of internal combustion engine win the final round? Secondly, will national regulators help the battery powered industry, either through subsidies for such cars or through penalties on cars using fossil technology? If the regulators show their hand the infrastructure for electric powered cars will get built.

Thirdly, would the high household debt in countries like the US, where customers have traditionally underwritten the risk of new product development, inhibit the development of such technology? Added to this, an ageing population, with depleted retirement resources in countries where customers can afford more expensive cars, might be a dampener on sales of electric cars. Customers in China and India, will not, on a large scale, be able to pick the tab for such cars at least in the transition decade ahead when households in developed countries cut spending while households in the big emerging markets would not have yet hit the affordability threshold (what PIMCO's El-Erian in his book "When Markets Collide" calls the collision between two markets- the collision between the markets of yesterday and the markets of the tomorrow).

Linked to the survivability of the automakers would be the survivability of various auto ancillaries. Ancillaries in electric cars will be different from those for fossil fuel fuelled cars. What will happen to the engine makers? How about the gear box makers? And the makers of clutch and transmission units? Tires could also acquire a different character based on how power is transmitted to the wheels. One should remember that in the early part of the twentieth century, when horse carriages ceased to exist, the manufacturers of buggy whips also went down. Players like leading French car tire maker Michelin are beginning to hedge their bets- they are beginning to get ready for tires which can flourish irrespective of the type of power plant that wins the battle- electric or gasoline. That is the type of company a creditor should feel comfortable with. In the late nineteenth century, tire maker Firestone started as a manufacturer of tires for the horse carriage industry. It quickly understood which way the technology wind was blowing and became a leading supplier to the Ford Motor Company. More than 60 years later, Firestone was slow to respond to the development of radial tires by its competitors, and when it did get its act together, it produced a very inadequate product and the company almost went bankrupt in 1979. It was bought out by Japanese tire maker Bridgestone in 1988.

Creditors to the auto industry need to get their worry caps on. Battery technologies are bordering on viability- once that happens the pace of viability will get faster as described by Ray Kurzweil. So, people who think that they will have adequate time to react and disengage from credit activities with entities having doubtful chances of viability might end up getting a short shrift. Car makers are beginning to hedge their bets. But companies with hedged bets would have to spend a lot of money so that they are not caught backing the wrong horse- such companies cannot support as much debt load as they previously did. As for gearbox makers, it is time for creditors to sneak out slowly. It might happen that the internal combustion

engine beats the electric car as it did in the early part of the 20th century- but a creditor is not paid for participating in such speculation.

Change in Distribution Model can change the Credit Story

Changes in distribution models can make some business and revenue models possible while destroying other revenue streams. Micro payments, when it becomes viable, will be the driver of many a credit story. Whenever changes in distribution channels are talked about, attention invariably gets shifted towards the media industry- newspapers, music and movies where profound changes are taking place. With the coming of age of the internet, changes in distribution models are occurring in numerous industries. Avon Products is a ladies' beauty product retailer that has historically used millions of women as sales representatives to peddle its products. When the internet revolution happened, the company downplayed the importance of the net, not knowing how it would impact its traditional distribution model. When Avon was lost in its internal debates, competitors ran away with a bulk of the revenues generated by the new distribution channel.

New distribution channels through intelligent strategizing, can throw up new revenue sources. In a poor country like India, low income consumers in rural areas could not afford shampoos and other hygiene products in large packs as the selling price was too high for the consumer to be able to buy at one go. The Indian unit of global consumer product company Unilever started offering products in rural India in small sachets costing Indian Rupee (INR) 2 (the INR fluctuated between 40 and 50 to the USD in the recent past). That proved to be a goldmine for the company as it brought millions and millions of new consumers to its fold. Not only was this new source of revenue profitable, it got consumers hooked onto a brand of products (rural consumers are less likely to change their brand preferences too rapidly). As the consumers got better off, they started buying the bigger packs which was more economical for the consumer. The cost of distribution in small sachets might even be higher

than production costs (as in the case of illegal drugs), but the venture was still profitable. In the case of rich countries, people are less sensitive to a few cents increase in prices of goods in small packets such as glue. So, producers can pass on all increases in costs to the consumers and then some more.

The distribution story of credit and credit opinions itself is likely to change. The FICO score based retail credit distribution model is probably over. That does not mean sensible analytics (as opposed to FICO scores as we discuss in chapter 10) has no place. It just means due diligence will have a bigger role and faith based credit distribution is over.

The issuer paid credit rating model's demise has often been foretold but never been realized. But change is coming- not necessarily because of regulatory action but because investors themselves, having realized the intense costs of such a model, might choose to outsource less of the analytical process or they might choose to pay accredited and independent external credit research agencies. After all, whoever pays the piper calls the tune everywhere- why should it be different in the area of credit analysis? Regulatory specification of minimum credit rating for investors such as pension funds can be replaced by the regulator putting various credit research reports on the web (which they might pay for through a toll on pension funds and bond funds linked to their assets under management). The regulator need not make any specification on which bonds a pension fund manager can invest in, but if a fund manager invests in a bond every credit researcher is negative on, he better have a sound explanation and credible analysis ready if he does not want to face investor lawsuits. That will keep everyone on the narrow path away from the conflicted wide gates that lead to damnation. Overtime, research firms with a poor record of credit calls (poor calls include excessively conservative calls) would be eliminated by the pension regulator by not subscribing to the research reports of those outfits.

Changes in Music Distribution killed the Credit Story while Private Equity the Venture Story

At the end of 2009, Clear Channel Communications' future depended on how the distribution model in two industries evolves- the music industry and the advertising industry. Clear Channel is owned by private equity shops which bought the firm in the heady days of 2007. The company owned 894 (at the end of 2008) radio stations in the US. The company got about 50% of its revenues from the radio stations and the other half from outdoor advertising in the US and other countries. Outdoor advertising relies on billboards, transit displays, mall and airport displays etc. The two businesses- radio stations and outdoor advertising- compete with other advertising outlets- satellite radio, broadcast and cable TVs, print media, internet etc for advertising revenues. Since this competition for revenues is intense, and the private equity players' only contribution to the company was to load it with debt, the company's existence had been put at peril. But the point of our discussion is the music license fees the company pays for broadcasting songs. Radio channels are one of the most viable music distribution sources for the music companies as the earlier main source of revenue – sale of CDs etc has been threatened by rampant piracy of music through music file sharing sites. As advertising avenues get more fragmented and radio stations get more financially stretched, it would put at risk the stations as a source of revenues for the music companies. Clear Channel's balance sheet is loaded with intangible items- license fees paid to the FCC for securing broadcast license, as well as permits for putting up billboards. If advertising revenues fall, the intangible assets would be seriously impaired. The company recorded an asset retirement obligation on its 2009 balance sheet for \$55 million on account of its obligation to remove outdoor advertising displays from leased land to reclaim the site to its original condition.

Private equity has been the scourge of the music industry with players from that industry paralyzing the fortunes of leading music industry players such as Warner Music and EMI.

They added financial risk to the already elevated business risk of those companies. Without the debt loaded by the private equity players, the music industry players had a ghost of a chance of reworking their business models and pricing strategies. There is of course no credit story there because the ability of the changed business model to generate cash is uncertain. But at least there was an investment story. Perhaps that story will be realized post a bankruptcy filing of Warner Music and EMI. Further down the horizon, a credit story might emerge. Sony Music survives thanks to its residence in Sony's balance sheet. Universal Music Publishing Group is safely ensconced inside French media giant Vivendi. The company took over leading music company BMG Music Publishing in 2007.

Revenue streams of the music industry have changed drastically. Earlier, the revenue model relied predominantly on the sale of music in the physical format such as CDs. Record store share of music sales dropped from 45% in calendar year 1999 to 30% in calendar year 2008. With the withering away of the physical format, music downloads are taking over, but they do not contribute much to revenue. Increasingly, performance income each time a song is performed on radio or TV or from a live venue is important. That is why the credit standing of radio stations and TV networks are important for the music industry. When satellite radio company Sirius XM (formed through the merger of two satellite radio companies Sirius and XM after accumulating a humongous amount of debt) ran into financial trouble in early 2009, it was not good news for the music companies. Synchronization revenue is earned when the songs are used in TV programs, films, commercials or karaoke. When a song is used as ring tone in cell phones, it generates additional income. But the lost revenue from CD sales and piracy has not yet been compensated by the new revenue sources. Because of this, companies are drastically reworking their costs and cost models- a credit story can emerge only when the costs are aligned to the new reality. One of the biggest and riskiest items of cost includes advances paid to artists before a piece of music is produced- which might or

might not be a commercial success. Also, the costs involved in developing and nurturing music groups is increasingly more risky on account of the cacophony of new music distributed freely through the internet. On the asset side of a music company's balance sheet are catalog assets of hit music and music that has been established, thus requiring less future marketing costs. The only question is, thanks to the change in the distribution model for music, are these assets as valuable as they once were? If not, serious impairment charges might be in the offing.

The scale of the changes in the music industry can be seen from the finances of leading London based music group EMI. Founded in 1897, the company, in 1992 took over Richard Branson's Virgin Records. In 2003, the company had revenues of £2.17 billion and profits of £401 million. By 2008, the company's revenue fell to £1.46 billion and the company plunged into a loss of £258 million.

EMI's sad story is mirrored by that of American music company Warner Music, which traces its origin to the Great Depression. For the year ending September 2005, the company had revenues of \$3.5 billion and a net loss of \$169 million. Four years later, the revenue had fallen to \$3.2 billion, and the shareholder equity had been wiped out. Also, the value of its cataloged assets would have fallen sharply. For instance, in 2007, the company acquired a 50% interest in Frank Sinatra Enterprises for \$50 million. Frank Sinatra Enterprises was a company established to administer licenses for use of Frank Sinatra's music. Had the acquisition happened a few years earlier, it might have been worth much more because the company would have captured all benefits from the distribution of the legendary singer's music. That not being the case now, its acquisition value was lower. We wonder how much of the music catalog of the Warner Music should be carried at the value they are being currently carried at.

News Distribution and the value of Free Content

The newspaper industry is one which has witnessed considerable pain on account of the players not anticipating changes in the distribution model. In addition to this, several players got terribly leveraged on account of being taken over by private equity shops. The US' Tribune Company, which owned newspapers such as the Los Angeles Times, the Chicago Tribune and other papers filed for bankruptcy in late 2008, as its private equity owner had leveraged the company far beyond the bounds of prudence. For some reason, the private equity players felt they knew a thing or two about all the media sectors- news, movies, music and felt they could bring their magic to bear on those companies. Alas, their magic wand works only in times of easy money.

Traditionally newspapers and magazines relied on advertising and subscription revenues. When a newspaper had overwhelming control over a particular market, all the advertising revenues gravitated to that company. The advertising revenues are correlated with the subscription revenue- the moment subscription falls, the value of the advertising channel to the advertiser also falls. And when subscription falls below a critical level, advertisers take their business elsewhere. When readers started getting their news online from multiple sources, subscription revenue fell and with that the advertising revenues also fell. The only way the advertisers can assess whether their money is being productively spent is if an online newspaper charges for its product (as opposed to giving it away) and customers pay for their online use.

While newspaper after newspaper gave away online content for free in the hope of advertising revenues compensating for subscription revenue, the venerable Wall Street Journal was the first paper to charge for online content. Giving content free ignores the fundamental fact that anything that customers would use only if it were free does not have much value anyway. And spending advertising budgets on sources which customers

themselves do not value highly is not a sensible strategy. Anything that is free is worth precisely that much. Zilch. The content producer's value proposition is different from a content pointer such as Google which secures revenues the moment its algorithms have pointed to the desired content and associated advertisement to the user of online search.

In December 2007 News Corporation, the media empire of Australian born magnate Rupert Murdoch, took over the Dow Jones & Company, the owner of brands such as the Wall Street Journal, Barron's and Market Watch. For the fiscal year ended June 30 2009, the Wall Street Journal had a circulation of 1.7 million. The Wall Street Journal Digital Network consists of WSJ.com, Marketwatch.com and Barron's.com. WSJ.com is the largest paid subscription news website in the internet with a million subscribers. WSJ.com does give away stuff that's not worthwhile for free, but charges for content based on what it is worth. News Corporation paid \$7.6 billion for the Dow Jones acquisition, on which the company recorded \$4.2 billion of goodwill and \$2.4 billion of intangible assets linked to trademarks. In 2009, the company recorded an impairment charge of \$8.9 billion, some of which was linked to the Dow Jones acquisition. But from a credit point of view, News Corporation should be alright as the Wall Street Journal style online business model gets replicated in a number of segments of the media company. As one of the strongest players in the game, the company will benefit as weaker players fall by the wayside.

Impact on Newsprint Makers

The fall in newspaper circulation might be good for the planet but awful news for newsprint makers. In 2008 newsprint consumption in the US fell by 14%. In April 2009, the largest newsprint maker in the world, AbitibiBowater filed for bankruptcy. Formed by the 2007 merger between a Canadian and a US newsprint maker at a time when debt was cheap, the company was done in by the simultaneous downturn in the business and the increased cost of refinancing of the takeover debt. One of the largest newsprint companies, Norway's

Norske Skog was in a bad shape when it was acquired by a couple of private equity shops in 2008, who felt that their knowledge of the sector and expertise was what was necessary to turn the company around. The company continued to make operating losses in 2009. The third biggest player in the industry, Helsinki headquartered Finnish-Swedish company Stora Enso also had operating losses in 2009. Clearly, capacity has to be withdrawn from the industry as the world requires less and less newsprint. The credit story of the newsprint industry had irreversibly changed.

The Movie Distribution Model will change yet again: Don't bet on any Movie Distributor

The current distribution model of movies just cannot last much longer- else it would put the content providers- the movie studios Sony, Paramount, Fox or Universal Studios into a serious financial quagmire. When a consumer watches a movie at a multiplex or on cable, or buys a DVD from Wal-Mart, the studio collects a fraction of the revenue. Traditionally, the biggest source of revenue was multiplex distribution. With US households cutting entertainment costs, they are more likely to rent a DVD (not buy it) or watch it through internet streaming. Hence, the way these revenues are captured would be crucial to the movie content producers- the movie studios.

There are lots of legal issues involved in the distribution of movies. Under US copyright law, based on the first sale doctrine, once a copyright owner (say a movie studio) sells a copy of his work, the copyright owner relinquishes all further rights to sell or dispose off the property. This doctrine is the basis of the movie rental industry which was not challenged historically because historically, studios were not threatened by the rental business. If the doctrine gets overturned in courts or in Congress, that would end the rental business and would finish off Redbox, a company that specializes in renting of DVDs via kiosks located at places like restaurants.

Netflix, the largest online movie rental subscription service in the US would also be threatened by any change in the interpretation of US copyright law. We don't know on what basis investors lapped up the \$200 million debt issue paying 8.5% coupon annually, issued in 2009 and maturing in 2017. Netflix is clearly a venture story (not a high yield credit story- if you believed the investment thesis, you should be in the company's equity). Netflix also secures revenue by streaming content over the internet which requires separate licensing rights from the studios. The ability to do this depends on studios licensing content for internet delivery.

It would only be a matter of time before the studios themselves do the internet streaming thus disintermediating Netflix and Redbox. And if DVD rental takes off in a big way and no legal bar comes in the way, there would be less incentive for the movie studios to produce quality content, which means that distributors would be hit anyway.

In addition, the splintering of distribution channels has put question marks on the survivability of independent distributors of movies. Independent distribution might have made sense in a different era when households consumed without looking at costs (when distribution through DVD rentals was a small niche). In 2004, Movie Studio Viacom offloaded Blockbuster, its distribution wing. In 2009, the company was making operating losses.

The cleavage between content and distribution might come to an end soon as distributors take over content producers and vice versa. The takeover by cable company Comcast of content producer NBC is a pointer of things to come. Viacom has launched a television channel Epix showing movies from Paramount and MGM Studios for a subscription. Leading media and entertainment company, Disney, has been selling subscriptions to its online library of children's books without an intermediary. Advertising revenues from TV fluctuate- subscription revenues do not.

Accounting Box: Understanding the Accounting Quirks of Relevant Industry

IFRS' principle based accounting (as opposed to strict rules based accounting of the US' FASB) is premised on the hypothesis that irrespective of industry, certain broad principles of revenue and cost recognition as well as principles for valuation of assets and liabilities suffice. FASB has provided accounting guidance for specific industries such as the music industry, the real estate industry, the cable broadcasting industry etc. IFRS has industry specific accounting only for the construction industry, the insurance industry and the natural resources industry. The whole world is moving in the direction of the IFRS standards. The European countries and several others are already operating as per those standards. India and China will soon move towards those standards abandoning their respective GAAPs. The US is also moving in that direction- whenever it has formulated new standards in the recent past, the organization tried to ensure congruence with the IFRS.

FASB's strict rule based accounting and guidance for different industries has the benefit that whenever an analyst is analyzing companies within a certain industry group, he clearly knows how the revenues and costs have been booked, provided he has fully understood FASB's guidance notes. The disadvantage is that crooked companies, or clever by half companies can twist the implementation of certain standards- i.e. - they can follow the letter of the standard while violating it in spirit. IFRS' principle based accounting on the other hand is prone to being bent but not being broken. The auditor, while signing off the financial statements under IFRS, effectively opines that the spirit of the standard has not been violated. That provides more comfort to the analyst, assuming the auditor has grasped the spirit of the standard and what it seeks to achieve.

For a simple brokerage business where the brokerage company collects a certain fee whenever a transaction is consummated, there is very little room for creative accounting. The moment a transaction closes, fees are due to the company (receivables). There is no

inventory and its valuation to worry about. There is no multiyear angle to the transaction- the full revenues from the transaction would be booked the year the transaction happened. There is no room for misstatement of assets and liabilities- probably there is a building where the employees sit which might have been by through incurring equity, debt or lease liabilities. The only accounting thought the analyst needs to worry about is the quality of the receivables- if the receivables are not collected within say one month after the transaction, the analyst can write it off.

Problems start occurring when a business transaction is not consummated at a single point in time, but stretches over several years such as the construction contract for setting up an oil refinery. The refinery owner might have given a fixed price contract to a contractor- if the contractor is unable to complete the project on time, he has to pay a penalty. The accounting standards require the contractor to book revenue linked to the percentage of the project completed by him. This opens up room for abuse as we will discuss in Chapter 5.

The accounting standards clearly explain which entities must be consolidated for reporting earnings, assets and liabilities. But we recommend, in Chapter 3, that in some countries, (particularly those in Asia) an analyst needs to look at financials of entities beyond those consolidated. One needs to look at the financials of companies of the same promoter group.

How about a two year insurance contract? Insurers book half the revenue in the first year and the other half in the second year. We argue in the Chapter 6 that this method of booking revenues is fine for property and casualty insurers, but not so for Credit/Bond insurers.

Contingent margins in various businesses arise from the fact that manufacturers of products and contractors do not wash their hands of the work of their hands but provide warranties (simple and extended) and indemnities post the sale which makes the reported margins a contingent one as there could be potential product replacements and rework involved.

Valuation of assets in the oil and gas industry is a tricky exercise. Creditors should be aware of the limitations of the accounting. In Chapter 6, we highlight why blind spread sheet based ratio calculations don't work, more so in this sector than any other and considerable commonsense has to be deployed.

Which expenses can be capitalized and which should be expensed is discussed in Chapter 7. We also explain there why credit analysts should focus on comprehensive income as opposed to net income for their return on capital employed workings. A credit analyst just can't stop at earnings- he needs to know how much capital was employed to generate those earnings. Only then he can assess if the earnings are sustainable. That requires clear estimation of the liabilities of the company.

But liabilities cannot be valued without estimating the value of assets- if the value of assets is lower than shown, shareholder equity would have to be written down. In Chapter 4, we look at valuation of assets. We discuss how credit rating agencies made mockery of themselves and their trade when they assigned credit ratings to banks and financial institutions that had most of their assets in the bucket that is called "Level 3 assets". These assets are valued by the institutions using models. That is an euphemism for stating that the assets are unspeakable junk and the values ascribed are for ensuring that it generates a certain amount of bonuses for the bank traders and top management.

The simple message for a credit analyst is that he cannot dive into a company's financials without fully understanding the dynamics of a business and the unique features of accounting in that business. Any other credit assessment process would lead to unfortunate events that credit rating agencies are all too familiar with.

Within an Industry, does the Business Model facilitate a Credit Story?

A business model is a strategy for ensuring that current earnings are sustained in the face of fierce competition through development of niches which other players find hard to replicate. Every company has a business plan but not every company has a business model. Companies that don't have a business model also have earnings that provide return on capital employed- it is just difficult to forecast if those earnings are sustainable. There is every possibility that companies which do not have a business model will destroy capital resources. For companies with a business model, one does not focus too much on recovery valuation because the chance of default of such companies is low during the crystal ball period.

A Business Model built around toll collection is great for Creditors if sustainable

The UK's public broadcaster, the BBC, has one important advantage over commercial television channels - most of its revenues come from a license fee collected from TV set owning households. The BBC does not have to ponder about fluctuating advertising revenues that other TV broadcasters need to worry about. That's great news for creditors provided this model is sustainable and gross mismanagement does not occur. We are not talking about a contractually protected toll collection mechanism such as in a power project post the construction phase. The power company has a long term power purchase agreement with a credible entity (preferably an entity related to the sovereign), a fuel supply contract with a creditworthy fuel supplier and an insurance contract with a strong insurer. Such a company is likely to be leveraged to the hilt and there are few opportunities for a creditor seeking out mispriced credit risk. We are talking about companies which while not protected contractually, have a toll collection based business model at their heart.

Visa Inc, the owner of the world's largest retail electronic payment network is a company that had such a model with a strong moat built around it, until recently. Visa collects interchange

fees every time a customer uses a credit card at a merchant's facility. Until now the biggest risk taken by the company was settlement risk because it indemnifies customers against any settlement loss due to another customer's failure. The customers being big banks, that was not an issue until recently, and perhaps not in the near future too (one might see some mid sized card issuers go down- not the big ones). The reason why the toll collection model might end is because the interchange fees are under regulatory and legal scrutiny. Such a fee does not exist in other payment systems- paper based systems such as personal checks, travelers checks etc. Credit card usage itself might be less prevalent in the years to come as households repair their tattered balance sheets and destroy most of their cards (if they have not yet defaulted on them). Remember, the credit risk of credit card usage is taken by issuing banks not by Visa Inc. But the sheer low usage of credit cards would hurt the company even if interchange fees are not reduced/abolished. If that were to happen, the balance sheet would crumble. At the end of 2009, Visa did not have any debt, and the company should not need any debt as long as the current business model persists. The day it requires debt would be when settlement risk blows up (say Capital One goes belly up without fulfilling its commitment of reimbursing Visa) or if its business model has taken a beating and it needs to reinvent itself. Unfortunately, that would be when Visa's credit story would have ended.

Not all toll collectors are profitable. In a competitive industry, the toll might be barely adequate to cover costs. Witness the plight of VeriSign, the provider of internet infrastructure services for e-commerce. The company gets its fees from two sources- it is the authorized registry for .com and .net names and it provides Secure Socket Layer (SSL) certificate services to internet sites with payment gateways, certifying to their security. The latter is a very competitive business. The company had a net loss of \$375 million in 2008, after a loss of \$149 m in the previous year. Its shareholder equity had been reduced to \$50 million. It had

a \$1.26 billion convertible debenture on its book, which we would not be surprised if it blew up.

The Bank of New York Mellon is one of the strongest financial institutions in the world on account of its toll model which eschews putting capital at risk. The bank was formed in 2007 when Mellon Financial Corporation took over Bank of New York. Substantial chunk of the company's earnings comes from toll collection for cash management, custodial services, collateral and asset management. Fees are linked to the volume of transactions processed and the market value of the assets managed/administered. In tough times, customers would want these services to be provided by a entity with strong financial strength. Actual or perceived drop in financial strength is enough to drive clients away. This flight to quality helps Bank of New York Mellon. Of course, in tough times, the volume of transactions would be lower, and since asset management fees are a certain percentage of assets under management, any fall in asset valuations would translate to lower fees even before considering client withdrawal of assets.

The business model of State Street Corporation, the holding company of State Street Bank which traces its origins to 1792, is similar to that of Bank of New York Mellon. However, the company had an investment portfolio which probably lost a lot of fair value in 2008 and 2009. The pitfalls of the tolling model are highlighted by the experience of State Street during the Lehman Brothers bankruptcy. State Street indemnified customers who had repo agreements with Lehman Brothers. The potential loss from this could be as much as \$1 billion. State Street took over the collateral but the collateral consisted of commercial real estate which had already lost a lot of value. State Street is also dependant on the volume of securitization transactions- hence it is likely to have lower earnings from that front in the near future.

Unlike the non capital intensive tolling businesses of Visa Inc, VeriSign or Bank of New York Mellon, the toll collecting business model of China's Sichuan Expressway Company is a capital intensive one. The owner of two expressways- Chenqyu Expressway and the Chengya Expressway -has a 30 year concession to collect toll from January 2000. The company was set up in 1997. The cash flows from toll collections have been going up. Usually, toll collection after two years of operation would provide a good conservative base case for estimating future revenues. While the company had debt of the same order as equity in 2004, successive years of good toll collection has ensured rapid debt repayment- so much so that by the time the company had an IPO in the middle of 2009, the company was almost debt free. Clearly, the company is underleveraged and can handle more debt even during slow down in the Chinese economy. The company's toll collection was not affected by the 2008 earthquake in the Sichuan province. The company planned to use the IPO proceeds to buy another toll road – The Sichuan Chengle Expressway from its parent the Sichuan Highway Development, which owned 32% of the entity post the IPO. Another state agency owned almost 21% of the company. Unless the company aggressively uses debt for future acquisitions, or it acquires expressways with uncertainty in toll collection, Sichuan Expressway is likely to be a strong credit for quite some time.

An interesting toll collecting company with a superb business model is the CFAO Group. The company is a specialized distributor of products in four areas- automobiles, pharmaceuticals, technological products (for say IBM) and consumer products. The company's area of operation includes African countries and former French colonies. The company's business model rests on distributing a product, say a Toyota car in 34 countries for a toll. Toyota does not want to get into distribution in such markets because the local market is too small. So, until the markets in those countries hit a critical size, the company has a free run. Ultimately, the company would be disintermediated – but until that happens, revenues

and costs are more or less predictable and growing. In 2008, the company had revenues of \$ 2.9 billion.

The Taxpayer subsidized Model of Archer Daniels Midland might suddenly collapse

One of the best business models, if played correctly and smartly, is to get the government to be a player on one's side, either through artificial boosting of revenues or through cutting of costs by getting the tax payer to subsidize the business or through granting of monopoly rights. Relying on such a business model is not new- the East India Company relied on a Royal Charter from Queen Elizabeth I to secure monopoly trading rights with India and China. This was highly profitable for the company. However, somewhere down the line, the company overreached itself and took political control over India to protect its monopoly trading rights that were challenged by other European powers. Ultimately, in 1858, the British government took direct control over India. The East India Company itself was dissolved in 1874 as a result of the East India Stock Dividend Redemption Act of 1874. In the United States, in the nineteenth century, steam ship operators were able to secure monopoly rights over ferry operations- a monopoly which Cornelius Vanderbilt crushed through the superior return on capital employed of his steam ships. This meant he could charge lower fares than the monopoly operators and yet be profitable.

Even a creditor whose moral compass does not always point north has to be very wary of such businesses. For a long while the business might seem flourishing. But such businesses have a tendency to go awry in a fairly sudden manner, either due to overreach on the part of the companies themselves or due to government changing its policy due to a new favored lobby emerging. When Indonesia's dictator Suharto was deposed in 1998, businesses linked to him suffered as they could no longer rely on the dictator using his influence with banks to provide cheap financing.

Whether functioning within a democratic polity or working as a favored oligarch in Russia, the business model of such companies is remarkably similar- feed the politicians and rulers the fat of the land so that they either facilitate organized thievery or look the other way when the plunder goes on. The tax payer funded business is not about bailouts as had happened in the banking sector and the auto sector in the US in 2008. In most of those cases the shareholders were wiped out or severely diluted. In the tax payer funded business model, shareholder returns are facilitated by government policies.

Agribusiness and agri-commodity trader Archer Daniels Midland is one of the most politically influential companies in the US. Through extensive political funding, the company has succeeded repeatedly in bending US agricultural and trade policies to its ends. The company is involved in the sourcing, processing and trading of agricultural produce. Currently the most important way the company makes money is playing with the government policies at every stage of the corn business. The US tax payer subsidizes American corn producers. This gives the company access to cheap corn which would not have been possible had such subsidies not been in place. The corn is used for producing corn syrup used in the soft drinks industry. It might be cheaper for the soft drinks producers to import cheap sugar from Brazil- but there is a US sugar quota which restricts the entry of foreign sugar. The company also lobbied heavily for the use of ethanol from the corn as bio diesel. Ethanol produced from sugarcane in Brazil is cheaper- so the company managed to secure high tariffs against foreign ethanol.

The company lists out a number of risk factors in its 2008 Form 10K but the risk that is really pertinent was described in the following way – “Government policies and regulations, in general, and specifically affecting the agricultural sector and related industries, could adversely affect the Company’s operating results”. As free trade agreements will become more and more potent, the tariffs and subsidies that Archer Daniels Midland relies on for

sustenance might have to go. Early signs are there in the horizon. It would be wise for the creditors supplying almost \$8 billion (middle of 2009) of debt capital to plan on an exit strategy.

When one relies a lot on government lobbying, it makes sense to be privately held so that one does not have to disclose information that a publicly traded company needs to, and thus keep away from the public glare. Cargill Incorporated, one of the largest privately held companies in the world is a big player in the agri-commodity business. Unlike Archer Daniels Midland, Cargill does not rely on tax subsidies to sustain its business- rather it uses the energy of the US tax payer's servants- its elected officials- to crack open new markets for the company. Hence, from the credit standpoint, this company's business model is not prone to collapsing suddenly. That is, if they have a clear fix on Cargill's trading and financing businesses.

The Credit Card Model is flawed: a Fee based Product being misused as a Fund based one

By the very nature of the credit card product, a customer who pays his monthly balances in full and hence a good credit is bad for the issuing bank from the income generating potential standpoint. Such a customer will not generate interest income but only fee income from the seller of goods at the point of sale. So, ideally, a bank should look at a credit card as a fee based product and not a fund based product. Only selectively, where a customer makes a big purchase on his card and pays off the loan over a few months, should the interest income component of the credit card be welcome. In fact, rather than mass selling credit cards to every Tom, Dick and Harry under the mistaken belief that the scale of operations will drive down costs and help to estimate a sound actuarial value of probability of default (PD), it makes greatest sense to give credit cards only to customers who have a deposit with the bank. That way, the bank already has an idea of the customer's income and spending pattern and need not ask for additional documentation. Mass producing credit cards in the hope that high interest payments from paying customers will offset the losses of delinquent customers is

flawed at the root, because a sound credit, who will not default, will not pay such a high rate of interest over an extended period of time. The high rate itself would trap the borrower into an unsustainable cycle.

Other than during times of deep economic stress, credit card and consumer delinquencies are likely to follow a definite path over a business cycle, for a given underwriting criteria. So, if Bank A gives a particular credit limit to a person with a particular income, the PD of the credit card book is likely to follow the business cycle with a fairly definite pattern, with low delinquencies as the business cycle starts looking up to high delinquencies when the economy takes a turn for the worse. Unlike a loan for a home or for a consumer loan, there is no down payment required for a credit card. So, the lender will not be able to glean the customers' saving propensity. The only way around is to ask for the bank statement of the credit card applicant for the past 6 months to judge income and savings of the applicant. Of course, this would drive away potential applicants if other lenders have lax approval standards, but it is the only way to make money from the product in the long run and not be saddled with delinquencies. Credit card companies relying on fee based income from the product have a sound business model. Any other model is unsustainable in future- particularly since sources of "income" such as home equity lines of credit will not be available.

US credit card issuers wrote off \$89 billion in credit card debt in 2009 after losing \$5 billion in 2008. The number of credit cards in circulation in the country fell by more than 130 million between 2007 and 2009.

Creditors rely on Oracle's Product Pricing Model not annoying Customers

Oracle is a leading California based enterprise software company. Its income predominantly comes from new software licenses and annual fees for the use of its software. The company uses two primary pricing models- license fee per named user and license fee per processor.

To ensure that customers are sticking to their license agreement terms, the company conducts random audits on customers, post which customers can be served bills if evidence of violation of license conditions is found. This can put off customers- the more aggressive the audit methodology adopted, the greater the risk of customer annoyance. Of course, this is not a business where an annoyed customer can walk out very easily. When a customer is running critical business applications based on Oracle's software, the cost of getting out of the agreement and getting into agreements with competitors can be formidable. One competitor is Salesforce.com which delivers its software over the Net (the software as a service business model). Customers who move away from running computing tasks on their own servers to running applications on remote servers supplied by other companies (so as to save on server investment and server maintenance costs), do not have to pay upfront license fees but pay fees for usage over a period of time.

Despite generating a huge amount of cash, Oracle has debt on its balance sheet on account of continual buyback of shares and on account of continuous acquisition of companies. Post an acquisition, the company has encouraged customers of its acquired companies to shift to its own system. All the debt can be serviced only if the license fees are steady. For the year ending May 2009, the company generated \$ 7.1 billion in new software license revenue and \$ 11.7 billion from license updates and support services to customers. If the pricing model changes, Oracle's creditors might be exposed to the risk of annoyed customers walking away. Oracle's German competitor, SAP lost customers in 2009 when it raised maintenance fees for upgrading products they had previously bought. Added fee was levied for support of such products. This also points to the criticality of getting the pricing model right.

Oracle has a history of aggressive sales practices. In 1990 the company almost went bankrupt after aggressive booking of as much revenue as possible in a given quarter. The sales force did this to get hefty bonuses. It involved trying to pressurize potential customers

to buy as much software as possible in the quarter. When the sales were ultimately not realized, the revenues had to be reversed. The company faced class action lawsuits due to this.

Flogging multiple revenue sources out of a single investment, without incurring additional expenditure on the additional unit of sales also happens outside the software industry. An example is the library of seismic data available with oil and gas sector services companies such as Schlumberger. Schlumberger is a leading technology, project management and seller of information pertinent to oil and gas reserves. One of its business segments is Western Genco, which provides a range of exploration and production services. The unit has a large multi client seismic library. The multi client library consists of completed and in-process seismic surveys that are licensed to customers on a non exclusive basis. The company capitalizes the costs associated with obtaining multi client seismic data. The carrying value of the multi client seismic data library at the end of December 2008 was \$287 million. Multi client data surveys are licensed or sold to oil and gas exploration companies on a non transferable basis. Revenue on completed multi client data surveys is recognized upon obtaining a signed licensing agreement and providing customers with access to such data. The costs are charged to “cost of goods sold and services” in its income statement based on the percentage of the total costs to the estimated total revenue that Schlumberger expects to receive from the sale of such data. Schlumberger’s 10K states under no circumstances will an individual survey carry a net book value greater than a 4-year straight line amortized value. The income that can be obtained from the data library depends on the value of crude prices prevalent in the international markets- when the crude prices are down exploration companies will be less willing to pay for such data.

India's Manappuram General Finance's Collateral Model makes it an acceptable Credit

In India, more than elsewhere, gold is regarded as a safe haven storage vessel for family wealth. India has consistently been the world's biggest importer of gold on account of this. Most families, particularly the less well to do, do not keep gold in the more liquid forms- biscuits or ETFs, but in the form of jewelry. Most ladies get gold jewelry from their parents at the time of their wedding. After marriage, many families accumulate wealth by buying more jewelry instead of buying liquid financial assets. Historically, in times of family financial distress, this jewelry would be pawned with village money lenders for short term loans. When the storm passed, the family would redeem the jewelry. The money lender loans have historically had a very high rate of interest.

Over a period of time, many Indian banks entered the business of loans collateralized by gold, attracted by the low risk of the solid collateral. However there were some issues. Unlike now, it was not readily possible to quickly judge the purity of the gold jewelry. That is crucial because it determines the loan to value ratio (LTV) of the loan provided. Because banks were not able to quickly judge collateral value, they would insist on a huge haircut to face value of the collateral provided.

Manappuram General Finance and Leasing Limited (MGFIL) headquartered in South India, is a non bank finance company that has been in business for more than 60 years. Its principal business is originating gold loans and is one of India's largest gold loan companies. Its competitive advantage over banks has been the ability of its loan officers to judge the purity of the gold collateral provided. This permits them to lend at higher LTVs than banks. Most loans have a contractual maturity of one year, though bulk of the loans are prepaid in 3-4 months. It finances most of its loans with public deposits (with some customers acting interchangeably as lenders to and borrowers from the company). For the year ended 31st March 2009, the company's interest yield on average managed assets was 22.71%. And the

average cost on interest bearing funds for the same period was 11.32%. Provisions for bad debt were only 1.84% of average assets, and they emanate mostly from unrelated business the company recently got into. Expenses at 6.69% of assets were high on account of the company's expansion program, which has not yet been fully scaled up. That translates into a net interest spread of 2.86% on assets- a number that is only likely to go up near term as expenses get divided over a larger asset base. And all this is managed without taking any tenure mismatch risk between assets and liabilities. Also, with a Tier 1 capital ratio (all hard equity- no debt instruments masquerading as capital) of 15% at the end of the year ending March 31st 2009, the company is not crazily leveraged.

Over a period of the next few years, MGFIL's competitive advantage will get eroded. New equipment is available with which even a loan officer in a small rural branch of a bank will be able to assess the purity of the gold collateral. Historically people have been worried about the purity of the gold jewelry used as collateral. We would not have been worried. When the borrower believes in the purity of the gold which he bought with the sweat of his brow, he would try his best to redeem it. In many cases this consensus reality works. Consensus reality can be more real than reality for extended periods of time. The lender's loss experience would be the same as if the gold were really pure. If both the grantor and receiver of stock options believe that the value of the options is what is implied by the Black Scholes model, even a skeptical investment analyst can use the Black Scholes model. If tomorrow these stock options are banned as a mode of employee compensation, the cash that would have to be paid as substitute would be the same as implied by the Black Scholes model, even if the real value of the options were vastly different. In fact, in finance, consensus reality works when both the counterparties, without coercion, agree on the value of an asset, even if the real value were vastly different (remember lending against the value of tulips in Holland?). Of course, bad stuff happens when the consensus breaks- but it can take

a long while if that reality has been deeply ingrained. Both the poor widow in rural India and the executive with options have an unshakeable belief in the value of their assets. Belief in the value of the tulip was not ingrained in Dutch culture. Neither was belief in the value of the dot com stocks culturally ingrained.

Once a bank official can assess gold purity, he would be prepared for lending at a higher LTV. And a bank's cost of funds is sharply lower compared to a non bank- so they can lend at lower rates. The other fear for MGFIL's creditors comes from the private equity investors who entered the company in late 2008. Private equity players entering a financing entity is always bad omen – they might force the company to expand faster than is prudent so that they can pump up valuation in the short run enabling them to dump the stock on the gullible and unwary on their way out. A finance company or a bank should not grow its assets at a rate faster than growth of its capital through internal accruals. Only then can the bank's systems and processes keep pace and ensure proper credit underwriting. A faster growth rate will kill asset quality and reduce the probability of creditors being repaid. Also, private equity owners might force a finance company to lend in businesses unrelated to its core area so that the book size expands faster than if the company were focused only on finance against gold. Non gold based lending to former customers of gold finance might make sense because the lender already knows about the behavior of such borrowers.

Be watchful of Companies with Business Model focused on the high end: the Nucor Saga

The saga of US mini steel company Nucor should provide an objective lesson to creditors of companies which focus exclusively at the high end of the market- whether they are high end fashion retailers, high end consumer goods or higher end software. At some point the customers to such companies might start wondering if it is really worthwhile to pay a premium for a high end product. These customer questions become more acute during an economic slowdown, particularly a protracted one. In good times, the high end businesses

have such salivating return on capital employed that creditors have the right to be impressed. And the higher up the value chain, in good times, the more rarified are the returns. This does not mean creditors need to eschew such high end producers. It is just that they should have a watchful eye on what potential competitors at the lower end of the price and perhaps quality spectrum are up to.

Nucor is one of the largest steel producers of the US and is the largest mini mill company. It makes use of scrap steel (scrap from junked cars) in electric arc furnaces as opposed to the integrated steel companies like US Steel. US Steel traces its origin to Andrew Carnegie's steel making days in the 19th century and was under the stewardship of illustrious individuals such as JP Morgan. Nucor had links to the Olds Motor Company in 1897 (which was to become part of General Motors as its Olds Mobile Division). After many adventures on the way, by the mid 1960s, the company started making use of scrap steel to produce steel of marginal quality. Unlike its competitors, it was only present in the low cost and low quality end of the spectrum of steel goods- the making of steel reinforcing bars. Having conquered the lowest end of the value chain, the company moved upwards to the mid-market segment by improving the quality and consistency of its products. In the 1980s, the company moved to higher end structural steel. In 1992, US Steel dropped out of making structural steel. As the integrated steel makers were ceding more and more space, paradoxically, their returns on capital employed went up higher as they were focusing more and more only on the high value add and getting out of low margin products. In the 1980s, while the integrated steel companies were focused on investments for high end steel, new technology came into being which helped even mini steel makers to make high end thin slab of steel.

In all its pursuits, Nucor was helped by the fact that the company had a low cost structure. It does not have unfunded pension obligations. In the first quarter of 2009, despite having a low cost structure, the company had a loss because sharply plunging steel demand drove its

capacity utilization below 50%. The company also had utilized inventory which was purchased in a high cost regime. However, there is no worry about Nucor's credit quality. As we keep insisting through this book, having a loss now and then is perfectly okay as long as one has high return on capital employed over a business cycle and is not leveraged to the hilt. When one is not terribly levered, there should be no problem servicing debt when the industry tide turns for the worse. Nucor is also helped by the fact that the company does not have unions to contend with which slow down business decisions. That does not mean the company tramples on its employees (which stores trouble for another day). Not only does it take care of its employees, it lists their names on the cover of its annual report to convey their importance. And the best way a company shows its respect for its employees is not having unfunded employee obligations- not by making tall statements about respect for employees being their core value.

Companies which focus on the high end experience problems when household debt gets very high. Even in fashion conscious Japan, where women would rather skip their lunch and rent than miss out on the Prada handbag, women have started skimping on such spending as household incomes plummet. Likewise, leading consumer goods maker, Proctor and Gamble has felt the adverse effect of high household debt in the US, with consumers shifting to the store brands of Wal-Mart etc. Telecom equipment maker Nortel Networks of Canada focused on high end products and ceded too much ground to Chinese manufacturers.

Ultimately, the company filed for bankruptcy. Companies in the smart phones sector would be wise to keep a close eye on Taiwan's mobile phone maker HTC. The company was founded in 1997 as a contract manufacturer of unbranded devices for wireless giants like Verizon, Sprint and many others. Now the company makes smart phones under its own brand. However, it has not left the contract manufacturing flank unguarded and continues to plough steady profits from this activity into higher margin activities.

The lesson from the Nucor story can be extended to the competitiveness of nations. One of the most fashionable theories doing the rounds is that developed countries, particularly the United States, should focus on very high end products, and on innovation and new design, while outsourcing all activities that involve manufacturing (and hence the investments in assets) to other countries. The return on capital employed of the country, the argument goes, would go up. To achieve this, all that the country should do is focus on developing a highly skilled workforce, well trained in mathematics and the sciences. This argument is seriously flawed and as Burke would put it in a different context “an uncouth, pernicious and degrading superstition”

In every country, it is not possible for all citizens to be innovators or inventors or endowed with mathematics and sciences skills (and thank God for that- else society would be a drab, colorless communist one). There would be people intellectually endowed in the sciences. There would be people endowed with talents in other areas. And finally, there would be a big chunk of citizens not particularly well endowed with super abundant talent- not the ones who create ideas which generate high returns on capital employed. What are such individuals to do? Only a manufacturing base will give all the citizens of a country a dignified life and a stable society. It will ensure a reasonably stable tax base and demand base and a society where creditor rights are protected. As documentary producer Michael More put it succinctly “what is the chance, if the person down the street is making \$50,000 to \$60,000 a year, [that he would] break into your home to steal your TV?” All that this focus on the high end is likely to do is to create a fear driven society where the credit story of the Smith & Wesson Company thrives.

Very small countries might seem to have succeeded in creating societies which operate at the very high end and ensuring prosperity for all citizens- the reality is such countries have some citizens focusing on high end innovation (as is the case with most countries)- the rest make a

living out of tourism and related services and glorified global money laundering by working in mega banks which facilitate such activity (such as the transfer of ill gotten wealth from other countries for a fee).

The second disadvantage of focusing on the very high end is that countries which focus initially on the low end would move up the value ladder through innovation and reinvestment of savings from the activities at the low end. Of course, there is always the possibility that such countries do not allocate the capital from the savings efficiently and hence persist at the low end – particularly societies which have a high element of central planning. But the chances are higher that countries operating at the low end will move up while ensuring stable profits from low end goods. As they move up, they will squeeze out countries which focus on “high end theories”. The funny thing is, as with Nucor’s competitors, for a while, the theory seems to work as societal RoCE goes up in the short run. And the consumption boom that this triggers in auxiliary services such as real estate construction and trading, financial services, high end restaurants, vacation planning, etc might make everyone feel good.

Just as for small countries, eschewing manufacturing and focusing on design works for small companies. But great companies like Intel never give up their manufacturing heft. Even if it works for some companies, it does not work at the societal level and it will hurt future sales as potential consumers lose their jobs. The next arena where the high end- low end debate would be fought is between Japanese companies and South Korean companies. Many Japanese companies are gradually buying the high end creed, putting their long term existence at peril. The emerging competition between Sony and Samsung (Sony is betting on outsourcing its manufacturing while Samsung is not) and between Japanese and Korean car makers rests on this premise.

Key Takeaways from this Chapter

Fortunately for a credit analyst, there is no cook book method by which he can analyze a company to judge its credit worthiness. For the intellectually curious credit analyst, that is precisely why credit analysis is an interesting pursuit- not a drab and mindless calculation of credit metrics and ratios. Traditional credit analysis books would talk about assessing credit through assessment of business risk (such as performance of an economy, industry analysis etc) and financial risk. That works fine when things enter a particular orbit- say for the two decades since the 1980s, but are woefully inadequate to call the turns in credit dynamics of a company/country.

Before one looks at the financials of a company, one needs to understand the credit story of the entity. We attempted to discern the facets of a credit story. We affirmed the caveat that we certainly have not looked at all the drivers of a credit story of each company in the world. At its core, understanding the credit story involves understanding how a company makes money (the return on capital employed). What are the drivers of revenue? How can these drivers change? Would an international trade agreement to come into force in the next few years affect the company's revenue producing ability? To what extent would the level of indebtedness of the government, corporate and household sectors impact the consumption of this company's products. Is a trade war looming in the horizon? Is there a threat of a competing technology rearing its ugly head, no matter how distant in the future? Once a new way of doing things is accepted, the pace of change just keeps accelerating providing very little time for a creditor to act and readjust his position. Will the changes in the fortune of the home country and associated dislocations of the exchange rate impinge on the company's ability to service its debt? Are the company's revenues linked to keeping the powers that be in the home country happy? This affords some advantages in the near term but that can go at the stroke of a pen.

How about costs? Are new regulations likely to impose costs which cannot be passed onto customers? Is there likelihood of cost inflation which can be passed onto the consumers only by accepting lower volume of sales? Are product distribution models likely to change and impact operating margins? How elastic are revenues to costs?

Any fall in operating margins of a business, on a sustained basis will cause asset value of the company (property, plants and equipment to fall). If sustained fall in operating margins push a company to default, the fall in asset values will impact recovery. So, fundamental to evaluating the credit story of an entity is assessing if the operating margins might fall on a sustained basis.

Obviously, the more open an analyst is to expand his understanding of the company beyond cook book recipes, the more likely he is to spot any potential trouble ahead. Cook books are based on how cooking was done in the past and wholly useless for spotting new recipes. Even accounting books are being cooked using recipes hitherto not used. But if there is an aspect of the credit story that an analyst has not understood, despite research and consultations with experts, the only honest course open is to walk away from the credit rather than go by conventional wisdom. One of the many reasons that the rating agencies failed to foresee the demise of Lehman Brothers was that they went with the conventional thought that a huge and “reputed” institution like Lehman could not fail. They were not perturbed that they could not value the company’s assets to enable them to calculate the true leverage levels at which the company was operating. When assets could not be valued, the MTM profits obviously could not be valued and debt servicing ability could not be estimated.

Chapter 3 Consolidated Financials and Consolidated Risk

Towards the end of 2009, when Moody's had a high investment grade rating on Dubai, and the Emirates' ability to service its debt was appearing decidedly wobbly, the rating agency got markedly nervous. Moody's started making murmuring noises about the limited availability of data on the debt outstanding of the different entities of the Dubai government. If they did not have the consolidated debt data, what was Moody's doing by assigning a credit rating to country's debt in the first place? It was a bit late in the day to announce that they did not have the data when several classes of investors had relied on the rating for their investment decision. In fact, the incident was merely one (and not likely to be the last) in a chain of wrong sovereign ratings assigned by one or the other of the international rating agencies, always followed-up by some sorry excuse instead of introspection and constructive problem solving. One of the sure fire ways of loosing money over the last couple of decades has been to base credit and equity investment decisions on the sovereign ratings assigned by credit rating agencies. It would rank in the same league as investing in Bernie Madoff's investment funds based on the audit report of dubious auditors.

The reason for accident prone sovereign ratings is due to the fatally flawed methodology of the rating agencies. At the core of the methodology is a disproportionate importance given to the income statement of a sovereign (through the fiscal /revenue deficit numbers) and its balance sheet (through calculation of sovereign debt as a percentage of GDP) while ignoring the debt structure of the society at large- including the household income statement (the savings rate), the household balance sheet (household debt/GDP), the corporate sector income statement (return on capital employed) and the corporate sector balance sheet (average corporate debt equity ratio). Despite the error of their methodology being repeatedly exposed when sovereign crisis were not forecast, the agencies have not re-looked

at their analytical framework. As the book of Proverbs in chapter 17 put it: a rebuke impresses a man of discernment more than a hundred lashes a fool.

It is impossible to look at sovereign financials without a clear understanding of the private sector financials. In fact, the correct metric for looking at sovereign debt is societal debt ratio which we define as the ratio of the sum of government debt, corporate debt and household debt of a society to its GDP. Whenever we talk about government debt, we also include the assets of the central bank which are denominated in the domestic currency. It is consolidated financials that give a clear picture about the sustainability of sovereign financial strength or the likely persistence of current financial weakness. Society's consolidated financials, in short, are leading indicators of sovereign fundamentals. By 2007, households and many companies in the West were levered to the hilt. And when they started defaulting, they ignited a credit crisis which by early 2009 had caused governments to inject more than \$400 billion in new bank capital and guarantee bank debts of almost \$ 5 trillion. In effect, the household and corporate debt was transferred to the government's balance sheet.

Government holdings became substantial in banks such as Citigroup, Royal Bank of Scotland, Lloyds Banking Group, Bank of America, and Commerzbank etc. Carmen Reinhart and Ken Rogoff estimated that public debt rises by an average of 86% in real terms in the periods subsequent to a big financial bust. These busts would usually have been due to corporations or households overextending themselves- so looking at government financials on a standalone basis is plain silly.

We will discuss in later sections why societal debt is the only way to analyze sovereigns and why all bloomers committed by rating agencies in sovereign analysis can be laid at the door of looking at stand alone financials and not the consolidated financials or just paying lip service to household and corporate sector fundamentals. Consolidated financials are also necessary to negate the effect of transfer payments which might cause sovereign debt to go

up in the short run but can cause higher tax receipts over the medium term on account of taxes collected from the increased productive activity on account of the transfer. Whether the transfer payment was productive or unproductive can be assessed from the consolidated financials and societal output as we will see later. When societal debt ratio is high, it is only a matter of time before governments resort to accounting artifices such as paying their employees a day late so that the expenses show up in next year's financials (an accounting subterfuge that the state of California did indeed take refuge in).

What is true for sovereigns is also true for corporate credit analysis. Stand alone corporate numbers can lead to grievous errors of analysis. This is particularly true of manufacturing companies like General Motors, Ford, General Electric, Caterpillar, Tata Motors etc which have financing arms. Even otherwise, diversion of cash flows from stronger to weaker entities within a group or among entities with the same dominant shareholder would make standalone financial analysis less than useful. While one can talk about theoretical concepts such as "ring fencing of cash flows", these are very difficult to implement in practice. In 2005, a consolidated analysis would have helped an investor spot trouble at derivatives dealer Refco, which was able to hide \$430 million debt by disclosing it as receivables in transactions with a private company owned by the Refco CEO.

Looking at consolidated financials extends to clusters of companies such as an industrial cluster. It is pointless to analyze the credit prospects of an auto ancillary which gets a chunk of its revenues from a single OEM without analyzing the credit prospects of that OEM. Quite similar to a cluster are Japan's *kieretsus*, which we discuss later. Also, credit analysts tend to split the full recourse and non recourse debt of companies such engineering contractors who own stakes in big infrastructure projects which they help construct. The debt at the project level is regarded as without recourse to the contractor. If, for analysis, one

assumes that the contractor can cut loose his non recourse debt, one should also assume that the value of the contractor's investments in those projects to be zero.

Even in a country where the household debt and corporate debt are under control, a sovereign is exposed to risk if its banking system is poorly regulated and it takes on credit risk in other countries where the household and corporate debt are high. When this banking system runs into trouble, as for example, the German banking system did when it took on US sub prime mortgage risk, the sovereign is in the dock, despite the fact that Germany's public and private sector debt is tolerable.

In this chapter, whenever we use the expression consolidated debt, we refer both to funded and unfunded debt exposures. Unfunded exposures emanate chiefly from providing guarantees for another entity's borrowing. So, in the case of corporations, one has to consider not only the debt of an associated entity but also guarantees for debt which have not been appropriately consolidated. In the case of banks, this could originate from of liquidity support to structured investment vehicles (SIVs), which potentially get converted into credit risk of the SIV investments when push comes to shove.

Standalone Sovereign Financials and the Six Blind Men of Hindustan

For those not aware of the plot of the poem "The Blind Men and the Elephant" by the poet John Godfrey Saxe, here is a synopsis of the tale- the six blind men of Hindustan touched various parts of an elephant and assumed that they knew how an elephant looked like. For instance, the fellow from Hindustan who touched the elephant's tail concluded that the elephant was very like a rope. Each and every one of the blind men missed the elephant in the room. As the poet concluded- "though each was partly in the right, all were in the wrong". A credit analyst analyzing sovereign financial health by looking at the government's fiscal surplus and Debt to GDP ratio should have the poem dedicated to him.

Of course, rating agency analysts do not look only at those two ratios- there are a lots of miscellaneous diversionary issues they “analyze” such as unemployment rate in a country by age and sex.

It is possible for a sovereign to have very healthy financials on the back of weakening household and corporate financials. When households satiate their appetite for consumption through increased debt and lower savings, demand for goods and services in an economy shoot up. This process is usually ignited under the gaze of a benign central bank’s easy money policy. To meet this demand, corporations might go for a spot of debt funded capital expenditure, taking corporate leverage to new levels. Even the outstanding debt of financial firms go up as they fund consumption directly or indirectly. Between 1998 and 2008, the debt of American financial firms jumped from 39% of GDP to 111% of GDP.

Jump in consumption will cause increase in tax collection on the back of higher sales tax and excise generation. Corporations would pay more taxes due to increased profitability. This would result in re-rating of the stock market multiples. Aggressive P/E multiples applied to supercharged earnings cause stock prices to zoom and fill the government coffers with capital gains taxes. Household animal spirits might make them aspire for a second and a third house, igniting a property bubble and a jump in property tax and property sector capital gains tax collection. Due to this, the government’s tax income shot up. Because of exclusive focus on a government’s finances for sovereign credit rating, which looks good in an environment of high tax collection, upgrades of sovereign debt by the rating agencies exceeded downgrades in every year between 1999 and 2007. The situation drastically reversed in the next two years.

Obviously even in a benign interest rate environment there is a limit to how much debt households and corporations can pile up before earnings are not adequate to meet basic needs and debt servicing demands. At some point even an indulgent central bank lead by a maestro

needs to raise interest rates before red hot demand pushes a society into inflationary anarchy. In some cases, besides debt for capital expenditure, “visionary CEOs” hell bent on transforming their industries might have gone on a debt financed acquisition spree. So, corporate leverage can hit unhealthy proportions during periods of high household debt.

When society is leveraged to the gills, banks start coming out of the woodwork to announce they are witnessing a jump in non performing assets (NPAs). If the bubble did not last long, the NPAs might be manageable after a few “systemically unimportant banks” go down under. If the boom lasted too long, some systemically important banks start begging for government support causing government debts to soar and fiscal deficits to rise. Government revenues through tax collection would now go into reverse, causing countries overnight to plunge from models of fiscal prudence to banana republics or kingdoms.

There is also a correlation between future unfunded state of public pensions and high private sector debt. High private sector debt will lay the foundation of a future stock market crash. When the inevitable crash happens, public pensions invested in stock markets might become unfunded. When companies with underfunded pensions go belly up, the onus of pension servicing falls on state agencies such as the Pension Benefit Guaranty Corporation. This too causes governmental debt to go up. When governments provide social security and health care at old age, it encourages consumption as citizens need not save for their own retirement. The increased current consumption caused by lack of current household savings also increases current tax collection but it comes at the cost of increased governmental liabilities in the future. This Ponzi game ends when the population in a country ages.

When households and companies quench their thirst for debt in foreign markets, it lays the foundation of a sovereign currency crisis. In such cases, the analyst needs to know not only the quanta of foreign exchange reserves of the country, but its structure (how much of the reserves is linked to hot money inflows etc). If the country that has borrowings abroad is

also running a current account deficit linked to excessive consumption (not a deficit linked to capital expenditure of a developing country) a currency crisis is on the anvil unless the country is very attractive to foreigners and it draws in considerable amount of foreign direct investment.

So, to assess sovereign debt, you need to start your study by analyzing trends in the following ratio:

$$\text{Societal Debt Ratio (SDR)} = (\text{Government debt} + \text{Household debt} + \text{Corporate debt})/\text{GDP}$$

Government debt should include all guarantees given by the government, the debt and guarantees issued by sub-sovereign agencies like export credit agencies, the domestic currency financial assets of the central bank (the size of the US central bank's balance sheet went up from \$850 billion in mid 2007 to \$2.3 trillion in mid 2010 on the back of purchase of questionable "assets" in billion dollar lot sizes during the credit crisis period) and the present value of the unfunded portion of liabilities such as Social Security and Medicare.

You need to ignore the following rating agency metrics to avoid taking your eye of the ball:

-Per capita GDP: Per capita GDP is no more useful to judge a society's ability to repay its debt than a householder's income is useful to judge whether he will be able to pay off his car loan. For a car owner, income to installment ratio measures his ability to service debt and loan to value (LTV) ratio measures the cushion available to the lender, should the borrower's income cease. An absolute value of the car owner's income is not necessary for the analysis.

- Institutional strength: Nice to have, but it must be viewed purely as an optional extra. In tough times, institutional frameworks get seriously brittle- so you need to assess the likelihood of tough times befalling rather than relying on institutional strength to bail you out once bad times set in. The arm twisting of creditors during the General Motors and Chrysler bankruptcies indicate to what extent institutional mechanisms and rule of law can fail when

the going gets tough and populism reigns supreme. The relentless bastardization of the coin of the realm by the Federal Reserve also indicates that institutions that look rock solid during good times are more malleable during tough times. The same can be said about the European Central Bank post the bailout of weak countries with a rash of rash measures. Also, politicians can resort to populism if they think it will help them in an election- witness the new tax on mining companies debated by the Australian government in early 2010. The increased revenue collected from the tax was to be, among other things, funneled into pension funds of Australian workers, thus enticing them to vote for the ruling party.

And you need to look at the following items, which find scant mention in rating methodologies (Refer Text Box- Sovereign Rating Methodology of Credit Rating Agencies) of rating agencies:

- Household and corporate savings
- Quality of foreign exchange (forex) reserves- Reserves stored in currencies of countries whose best days are behind them might not be prudent
- Net lending/borrowing of households as percent of disposable income

The V_{Gap} and Society's Illegitimate Debt

Let us consider a country with a GDP in year 1 and year 2 of GDP_1 and GDP_2 respectively. In those years, the societal debt was D_1 and D_2 . Let the weighted average cost of societal debt be K . Between year 1 and 2, the GDP of the country grew by $\alpha\%$

$$\text{So, } GDP_2 = GDP_1 (1 + \alpha)$$

Let the Societal Debt Ratio (SDR) for year 1 and 2 be denoted by SDR_1 and SDR_2 i.e.,

$$SDR_1 = D_1 / GDP_1 \text{ and } SDR_2 = D_2 / GDP_2$$

Society's Marginal Productivity of Debt (MPD) is defined below as

$$\frac{\Delta \text{GDP}}{\Delta \text{Debt}} = \frac{(1 + \alpha) \text{GDP}_1 - \text{GDP}_1}{(1 + \alpha) \text{SDR}_2 \text{GDP}_1 - \text{SDR}_1 \text{GDP}_1}$$

$$\frac{\Delta \text{GDP}}{\Delta \text{Debt}} = \frac{\alpha}{(1 + \alpha) \text{SDR}_2 - \text{SDR}_1}$$

Define the V_{Gap} as

$$V_{\text{Gap}} = \text{MPD} - K.$$

If the V_{Gap} is positive, society's aggregate debt is legitimate (it does not mean each and every debt is legitimate) and income accrued from deploying debt can be used to service the debt. The more MPD is greater than K, the faster society's debt can be paid off. On the other hand, if MPD is less than K, society will require more debt to service current debt or sell assets. It would be misleading if one looks at a single point MPD value and draw conclusions. There might be some timing mismatch between resources being deployed and income accruing due to factors such as construction period etc. It is safe to use trailing 3 year averages of MPD and K. If this average shows an ever widening negative V_{Gap} , it is sensible to wonder if the society and the government's finances are heading for trouble, irrespective of what a credit rating agency proclaims from its ivory towers. The Soviet empire was doomed because it required ever increasing resources to generate a unit of GDP growth.

Obviously, a society which is using its savings instead of debt to generate income is likely to witness positive V_{Gap} on account of lower cost of debt financing. Low MPD would cause higher inflation, higher interest rates and in times of high global liquidity, make the country a

recipient of “carry trade” money. That drives the country’s currency up when it should be depreciating on account of low productivity.

If you are a short term credit investor in a country and you see a negative V_{Gap} , you should check if the government has some liquid resources to pay your obligations and obligations of similar tenure before disaster strikes. But that is a risky call, because once disaster strikes, things might not go as per script, with government officials running around like headless chickens as they are wont to do.

If you are an equity investor, you should certainly not be scouting around for opportunities in a society with a negative V_{Gap} . Governments in such societies are likely to have large unfunded future commitments such as retiral and healthcare benefits and these obligations could be senior to debt (at least in the minds of politicians if not in a court of law). The only way the government in such a position would be able to extricate itself is by renegeing on some obligations. It is not the creditor’s business to speculate on which obligations the government would renege on.

Does Tenure of the Consolidated Societal Debt Matter?

If all goes as planned, one of the easiest ways for a hedge fund to make money is in the “carry trade”, wherein the fund takes advantage of a steeply upward sloping yield curve to borrow for short tenure (say for 6 months) at 5% and lend it for longer tenure (say for 10 years) at 8%. Hedge funds would probably complicate matters by borrowing in one currency short tenure and deploying the funds in long tenured assets of another currency, thus taking the risk of two yield curve shapes in addition to currency risk. However, that complication need not detain us for the present and we will focus on borrowing short and investing long.

Does the tenure composition of societal debt matter when calculating V_{Gap} ? In other words, is it possible for society at large to participate in a carry trade? The short answer is that it is not

possible at the consolidated level. If everyone in society borrows short in the domestic currency, including the government, corporate and household sectors, demand for short term debt will push up the cost of short term borrowing, removing the benefit of borrowing short. While it is possible for individual components of society to play the carry trade, for society at large it is not possible. This would cause borrowers to borrow for the tenure that makes most sense for them- corporations financing long term projects borrowing medium term and households borrowing short term for consumer finance. The shape of the yield curve might hit “conundrum” proportions if a foreign or domestic lender deploys funds for tenures that might not make sense from purely commercial considerations. If society at large tries to participate in a carry trade by buying long dated assets with short term borrowing, the short term rates will rise and the trade will disappear- but might leave some bankrupted household/corporate in its wake as they need higher and higher cost funds to meet their financing requirements. In such a period, there would be a rush to liquidate long dated assets- which will drive their value further down.

It is however possible for corporations and governments (Hungarian and Estonian households having Swiss Franc denominated mortgages) to participate in a carry trade in a foreign currency for an extended period of time. But sharp tenure and currency mismatches always carry the threat of insolvency as East European households found out to their cost.

Societal Inefficiency is a Cushion for Creditors

A society that is operating at the efficiency frontier cannot generate additional cash by improving productivity. A society is said to be functioning at the efficiency frontier if there is no scope for cutting its energy consumption without impacting its gross domestic product. A government department that is employing too many people can cut its energy consumption by letting some people go without impacting the quality and quantity of goods and services provided by that department. Now a creditor ideally does not like to see his borrower

operating in a zone of low productivity. But if all things are the same between two countries, the more inefficient society, paradoxically, offers more comfort to a creditor because there is room for cutting costs by improving productivity. In short, there is room for enhancing the sovereign's cash flow without putting at peril its tax base.

Household and Corporate Savings are relevant for assessing Sovereign Risk

Peering at household and corporate debt will help assess to what extent the sovereign debt can go up in future. If households and corporations of a country are under leveraged, they will not impact sovereign debt, because they are neither likely to put the banking system at peril nor are they going to create a deep recession which require government bailouts and stimulus packages and which sharply impact government income- whether in the form of reduced income tax, corporate tax, property tax, sales tax or capital gains tax.

The other dimension to sovereign debt analysis is household and corporate savings. Ignoring this is sheer idiocy that rating agencies recklessly participate in, because when households and corporations (particularly households) are great savers, the financial flexibility available to the sovereign increases leaps and bounds. The savings of corporations such as Cisco, Microsoft and Google, which invest part of their savings in US government securities, provides flexibility to the US government. Few countries can survive at sovereign debt levels close to 200% of GDP- but Japan has, thanks to the savings of its household. When these households, due to an ageing population, reduce their savings, the Japanese government is going to have a tough time servicing debt. To date, more than 90% of Japanese government debt is held by domestic institutions which rely on the high household savings of the country. But creditors need to start worrying as the household savings rate of Japanese households has fallen from 15% in 1992 to less than 3% now. Thanks to the savings of its population, the Chinese government (household savings rate of 38%) has been able to get away with funding low return projects. Now this might have the flavor of a Ponzi scheme- using abundant bank

deposits to fund bad projects- but in the short term, this affords great luxury to the government, which can boost employment and tax collection. The Chinese government can boost growth anytime when it forces the banks to lend those deposits. China's bank debt funded model through financing of state owned enterprises at low rates is viable only because of the high savings of the Chinese households. Obviously the governments in Spain or Ireland or the UK do not have this leeway. Yet the rating agencies rate those countries higher than China and Japan.

Societal Assets matter

If sovereign resources can be sold without embarrassment, societal assets are also a source of comfort to creditors. This is what a number of US states have been doing- selling off bridges and highways to private entities under the so-called public private partnership model and permitting the private entities to charge a toll. Obviously, a government which owns such highways and bridges that can be sold is in a better position than a government which never got around to building those roads and bridges in the first place. Likewise, government holdings in profit making enterprises must be given a positive weightage in the sovereign risk analysis. Holdings in loss making units which require continuous cash infusion must have a negative weightage because chances are there would be no buyers for such assets and such firms cannot be shut down without political consequences.

The financial analyst must remember that not all assets can be sold off. Similarly, not all liabilities can be wished away, though some, such as health care might be reduced through cutting corners and hoping voters might not note the difference in service quality. The sensitivity of asset sales and liability shaving varies from country to country and from asset/liability type to asset/liability type. It is unlikely (at least in the near future), the United States will auction off the Seventh Fleet or pension off its pension liabilities. So, when analyzing a country's sovereign debt, the gross debt figure overstates the liabilities. One

must subtract the value of assets that can be sold off without much quandary, so that the debt figures of different sovereigns can be brought to the same level for ready comparison.

Stories in Sovereign Credit Analysis

There was something Moody in Iceland

Iceland, since the early part of the 21st century was clearly a society living beyond its means. And it provided a playground to Moody's sovereign rating analysts to fulfill their karmic destiny of making priceless fools of themselves. S&P and Fitch, in this case, looked marginally smarter.

Between 2002 and 2005, the SDR of Iceland jumped from 247.9% to 346.2%. Clearly, by the end of 2005, Iceland was rushing like the Gaderene swine to acquire the status of a banana republic. Because of the debt funded excesses of the corporate and household sectors, the government's budget surplus was around 5% of GDP in 2005. The SDR further worsened in 2006 and in 2007 even as the budget surplus hit 5.5% of GDP in 2007. Two years later, the deficit was to hit 13% but that comes later in the story. The limited point being made is that deficits and surpluses can swing either way fairly rapidly when corporate and household debt jump up or the debt is deployed in unproductive avenues. Hence tracking a government's budget deficit and surplus is a mug's game.

In mid 2005, in its annual credit surveillance report of Iceland, Moody's justified the country's Aaa rating by citing the "government's low debt" and "the economy's unusual financing flexibility" (!!). The agency did make a passing reference to the country's high current account deficit and a credit driven consumer boom, but it did not bother Moody's sufficiently to take a re-look at the country's credit rating. Au contraire, the agency felt that the Aaa rating was secure on account of "the government's modest debt, high labor force participation and a well funded pension system".

Because the general government debt was just 36% of GDP at the end of 2004, to Moody's, all other issues were irrelevant. This intellectually weak analytical framework ensured that Moody's had egg all over its face in 3 years. If only the rating agency had looked at the deteriorating SDR in domestic and foreign currencies as well as worsening V_{Gap} , it would have saved itself and investors using its credit ratings as oracular revelation a lot of blushes. Private credit growth, year on year, was 64.5% in 2005, after an already torrid growth of 39.6% in 2004.

Digging itself deeper in the hole of intellectual inadequacy, in April 2006, Moody's concluded that Iceland's Aaa rating "is not experiencing undue risk to solvency or liquidity as result of recent volatility in the nation's business and financial cycles". Moody's felt these concerns "have been exaggerated". Moody's Iceland credit czarina concluded, in a last dash of rushing where angels fear to tread, "Iceland is well positioned to deal with any potential claims on government resources that might emanate from a systemic problem in any sector of the economy". And yet, in two years....Agh!!!

On January 1 2008, Moody's still had a Aaa credit rating on Iceland. On the 5th of March, the outlook on Iceland's government bond ratings was changed to negative by the agency. On the 20th of May, the long term foreign currency obligations were reduced, tepidly, by one notch, to Aa1. At the end of the third quarter of 2008, total household debt reached 115% of GDP and corporate debt a whopping 316% of GDP. On the 8th of October, after all the horses had bolted, Iceland's rating was downgraded by a further 3 notches to A1. In less than two months, on the 4th of December, Moody's downgraded Iceland by a further 3 notches to Baa1. In the 12 months of 2008, after eulogizing the virtues of Iceland's government debt management in the prior 3 years, Moody's downgraded the credit rating of the hapless country by 7 notches. And the outlook continued to be negative!! For some unknown reason, Moody's sovereign credit team still had their jobs in January 2009 and lent their

names to the Iceland credit analysis report of the same month. It seems job security at the agency is higher than that at the governments of the countries the agency purports to rate.

Moody's credit analysis report of Iceland in January 2009 was excruciatingly funny but also poignant. Instead of acknowledging the deep flaws in its analytical framework, it talks about the risks to the Icelandic economy emanating from the problems with the fishing stock of the country. The agency praised the "high degree of social consensus in the country". Besides the philosophical question whether a high social consensus is a source or sink of societal creativity and productivity, its relevance to a government's ability to service its debt are, at best, of a marginal and peripheral nature. Moody's continued to have as high an opinion of the "country's institutional strength" as it had 3 years back. Of what use is a parameter for forecasting credit quality if it did not change well before a crisis thus pointing its moving finger in the direction of trouble ahead? A leaf which flutters after the wind has passed through is useless for predicting the likely arrival of the wind. And the color of the butterfly sitting on the leaf is even more useless for predicting the wind. You can get the right answer even after asking the wrong question only if you were lucky to have encountered a Type III error. In Finance, that happens only during times of abundant liquidity. Unfortunately for Moody's, it had no such luck with its Iceland credit rating as global liquidity had dried up in the post Lehman world. While removing such spurious parameters from its analytical framework would make it simpler and more relevant, it would also remove the halo from its army of economists and political analysts and the *raison d'être* of a sovereign rating team.

Moody's estimated that in 2009 Iceland's government debt would hit 145.3% of GDP (remember it was only 36% of GDP at the end of 2004). That was slightly more than the debt of war hit Lebanon which sported a B3 rating from Moody's at the beginning of 2009. Debt of 45% of GDP was on account of guarantee of foreign currency bank depositors, which the country, at the beginning of 2010 looks likely to renege on (so much for "institutional

strength”!). An interesting proposition that some mediocre credit analysts put forth is that countries with disproportionately large banking system vis-à-vis their economies are not responsible for their banking systems’ debt to foreigners. Short of aspiring to be another Zimbabwe (or another Iceland), it is not a reasonable proposition. When the banking system is bailed out, it has to be done in one shot- you can’t guarantee only domestic depositors and expect not to be an international pariah. In Iceland’s case additional resources were needed to recapitalize the central bank and the commercial banks. And that ignores corporate and household debt. Moody’s expected government revenues to decline by 16% and the budget deficit was expected to hit 13%. Even these could turn out to be too optimistic.

At the end of the 2009 report, Moody’s calculated or presented 51 parameters as indicators of Iceland’s credit quality. Alas, the relevant parameters – the SDR and the V_{Gap} were still not calculated, thus ensuring more credit accidents are likely to emanate from Moody’s stable in the future. We just hope investors (credit and equity) have understood the risk from tracking sovereign ratings and have put in place analytical processes for protecting themselves. We certainly hope that the herd of European banks, investors and hedge funds, which invested in Iceland based on Moody’s credit rating, has learnt its lesson and in future holds sovereign rating opinions with minimum high regard.

Fitch “Analyzes” Irish and Indian Sovereign Credit Risk

There was a time when Ireland had real growth, but by 2004, growth had given way to a debt financed bubble. The country thought it had a competitive advantage vis-à-vis vastly superior economies such as Germany when it attracted multinationals on the back of its low tax regime. Competitive advantage flows from the innovative and entrepreneurial spirit of the citizens of a country and the extent to which the government does not shackle that spirit, not from being a tax haven or indulging in unproductive speculation in real estate and other

low yielding assets. Besides, Ireland was a mouse in a room filled with dancing elephants- the country was not fully a master of its own destiny like Germany.

Fitch, the number three rating agency in the three-horse race, both from market share as well as intellectual firepower view point, was strangely untroubled when the gross debt of Ireland jumped from € 504 billion in 2002 to €1670 billion in 2008. That marked a 231% jump in debt. During that period, the Irish GDP went up by 30%. The MPD was thus horrifyingly low and the negative V_{Gap} was a pointer to the fact that Irish society was deploying debt for unproductive purposes.

The report accompanying Fitch's 2005 affirmation of Ireland's triple-A credit rating borders positively on the asinine. The report harps on productivity growth, when in fact, Ireland's use of resources was shockingly appalling. Of course, if you measure productivity by unit labor cost and not based on return on capital employed you are doomed to wrong conclusions. A society which employs a considerable amount of debt to secure growth can easily overstate labor productivity. When dollops of debt are strewn around, average productivity, on the back of temporary output surge would seem high.

The 2005 report, like the reports of other rating agencies, harps on the high per capita income of Ireland. Does it matter? If the per capita income of a country is USD 100,000, but if every one owns a million dollar McMansion in addition to a yacht, the country is less likely to be able to service debt compared to a poor country with a per capita income of USD 1000, provided the citizens of the poor country have low household debt and the corporate sector has not gone on a debt financed binge and put the banking system at risk. According to a report by the McKinsey Global Institute, in 2008, the combined debt of Indian households and corporations was less than 50% of GDP. The same ratio was around 150% for the United States while it was almost 225% for Spain. The Fitch report mentions "private sector credit

growth remains buoyant” without worrying whether the debt was being used for productive purposes or if it was being used to create a real estate bubble.

In 2006, while praising Ireland’s debt fuelled growth, Fitch castigated high growth India (rated BBB- in 2006) for its high government debt and shabby state of government finances. While Fitch had a point criticizing India’s pathetic public finances, its fulminations ignored the financial flexibility the country enjoys on account of its high growth, high household savings rate, its miniscule household debt, its low corporate sector debt and its demographic profile. Sustainable growth can reduce debt servicing burden considerably. At the end of the Second World War, the US had a Debt to GDP ratio of 122%. On the back of high growth over the next three decades, the ratio fell to 33% in 1981- not because the absolute value of debt fell, but because GDP had grown several fold on account of productive usage of societal resources. When household savings are high compared to public sector deficit, a government can always secure financing from within the country to service debt. The government can force the banking system to subscribe to government debt through a Statutory Liquidity Ratio (SLR) as the government of India does. Banks need to have a SLR of 24%, i.e. they need to deploy 24% of their deposits on government bonds. Indian public and private sector employees are required to set aside 12% of their monthly basic salary for retirement savings (with matching contribution from the employer). These retirement savings are invested in government securities, giving the government a juicy source of investors for its debt on a continual basis. Governments can also direct financing to certain projects/entities by getting a not too independent banking regulator to reduce the risk weights of banks’ exposure to such projects/entities. That, in effect, encourages the diversion of household savings to those projects thus reducing the need for government spending on such projects, freeing up government funds for debt servicing.

Now, this usage of household savings by the government is not the most productive usage of societal resources, and many Indian languages have a saying that if the king (that is, the government) becomes a trader, the subjects become paupers. But it ensures debt servicing by the government without external support in the medium term. Governments can also redirect household savings through tax incentives. Of course, such a situation cannot persist forever if governments deploy the funds for unproductive usage, as the Indian government definitely does. But that is a problem which can be solved over a few years (particularly in the case of a country on a sustainable high growth path), unlike the problems of a country whose SDR had spun out of control. To the eyes of common sense, but not to the eyes of Fitch, in 2006, Ireland was a risky country to invest in, a country that had merely postponed its troubles to another day on account of easy global liquidity.

Of course, if a government runs a high fiscal deficit and at the same time there is a fall in household savings, the sovereign which has got a chunk of its deficit financed by banks could put the banking system at peril. By the beginning of 2010, Greek banks held €39 billion of government debt, which was almost the same as the amount of capital they had. If the Greek government defaulted, the banking system would get into serious trouble. Greek banks extended their exposure to the government by writing credit default protection on the Greek government. Why buyers of credit protection thought they were protected by buying protection on sovereign debt from the banks located within a sovereign's realm is a question best left to them. The protection buyers clearly ignored the linkage between sovereign credit strength and the credit strength of the banking sector. What is to prevent a sovereign experiencing deep financial stress from nationalizing the banking sector and forcing it to buy government debt? Even in Ireland, the government forced the banks it had bailed out to subscribe to government securities. But we are getting ahead of ourselves on the Irish sovereign debt saga.

On January 15 2008, Fitch affirmed Ireland's AAA rating. The outlook was "stable". Fitch was still obsessing about Ireland's low government debt, which was at 25% of GDP. A metric, Fitch and investors in sovereign debt would do well to track in future as an auxiliary measure of sovereign credit risk, is net lending/borrowing of households as a percentage of disposable income. In 2007, the net *borrowing* as a percent of gross disposable income of Irish households was 14.7%. To get a perspective, German households' net *lending* was 8.2%. Now that's a triple-A country for you. When households are net lenders, they can provide funds to the other sectors of the economy for investment. The Irish household borrowing was the worst ratio among the EU27 countries, a grouping which includes profligate countries such as the UK, Spain, Portugal and prudent ones such as Germany. Fitch made a passing reference to the Irish real estate bubble, but deemed it, more or less, a factor not necessary for assessing sovereign credit risk. Fitch did not have the intellectual wherewithal to assess the implications of Ireland's property related tax revenue jumping from 4% of total tax revenues in 1995 to almost 17% in 2007 and the concomitant jump in household sector real estate investments and real estate debt. Between 1991 and 2007, Ireland built houses equal to almost 25% of its population.

In the January 2008 report Fitch, while justifying the AAA rating, also rhapsodized about the country's sound banking sector. Pretty stupid, even for a rating agency! In 8 months, the government had to guarantee the deposits of the leading banks to prevent them from collapsing. Fitch's denseness hit new heights on the 30th of September 2008 when it reaffirmed Ireland's credit rating after the government guaranteed the deposits and debt liabilities of the six big domestic banks. Fitch felt that the government's low debt to GDP ratio meant that the guarantee would not lead to precipitous decline in sovereign credit quality. The rating agency still did not feel the need to peer at the country's private sector debt and the debilitating influence it had on sovereign credit quality. On the 20th of January

2009, when even an imbecile in the investment business realized Ireland was technically insolvent, Fitch reaffirmed Ireland's AAA rating. The outlook was stable!!!! Finally, on the 8th of April 2009, after all the horses had bolted and donkeys had occupied the stables, Fitch downgraded Ireland by one notch to AA+. The outlook? Oh, it had turned negative within 3 months. The great German chancellor Konrad Adenauer lamented on the unfairness of God limiting man's intelligence without limiting his stupidity. He might jolly well have been talking about the travails of Fitch. Perhaps the best advice to the Fitch sovereign rating team would be the advice a US senator gave to heads of US banks in the spring of 2009- go and commit Japanese style hara-kiri if they had any sense of decency or shame.

Analysts are very fond of quoting the investment rate of various countries. They talk about high investment rates in Asian countries. In reality, the investment rate is a misleading metric. Unproductive investments (like fiscal stimulus of most countries during an economic slowdown) will cause long term harm as the increased debt will have to be serviced out of assets which yield low economic return. Driven by a real estate bubble, Ireland had an investment rate of 24.7% in 2007. A country with good physical infrastructure should not have this high an investment rate in physical assets- the investments need to be in intangible assets such as higher education and R&D. During the decade between 1995 and 2005, Germany's investment rate actually fell, and in 2007, it was slightly over 9%. And this investment should not come out of the government's budget, if it is to have a useful outcome. Japan's investment in physical infrastructure during the 1990s by the government is a classic case of unproductive investments that cause sovereign debt to go up without generating returns.

Talking about Japan, despite higher government debt and an ageing population, the likelihood of Japan servicing its debt is far more than Ireland doing so. Because of their flawed rating methodology, all the rating agencies rated Japan lower than Ireland. As an aside, if you had

used the SDR- V_{Gap} framework, you would have realized in the late 1980s that Japan's real estate and corporate sector would implode soon, and a big jump in government debt was likely on account of having to bail out banks and stimulus packages to pull the country out of a deep recession that always follows a debt funded binge. Looking at Japan's negative V_{Gap} in the late 1980s, you would have pulled all debt and equity investments out of the country. But today, Japan which has world beating companies in areas as diverse as making solid steel vessels for nuclear reactors to making motors for hard disk drives, is in a far better position than Ireland which merely has multinationals located there for tax arbitrage purposes. Japan's possibility of rejuvenating itself is far higher- Ireland can at best cut its public sector spending to generate fiscal balance. And the demographic worry for both countries is equally severe.

Ireland is a classic case study of how unless you study the link between public finances and private finances through the prism of banking system health, you are not going to get your sovereign risk analysis right. There is a transfer of private sector risk to public sector risk when the household sector and corporate sectors get excessively leveraged and put at peril the health of the banking system. In the case of Ireland, this crystallized in September 2008, when the government of Ireland guaranteed all bank deposits of leading banks to prevent a run on those banks which were tottering under the weight of non performing loans. By doing this, Ireland had in spirit if not in letter, violated the EU requirement that all member countries maintain their sovereign debt at less than 60% of GDP.

Looking at the credit scenario in late 2009, there is no reason on earth to believe that that the credit quality of the Republic of Ireland will improve soon, despite the pay cuts imposed on civil servants. In early 2009, Nobel laureate Paul Krugman said that Ireland faced the worst economic outlook in the world (though the woes of Greece, Portugal and Spain grabbed the headlines in early 2010). By the end of the year, the government debt was on target to hit

100% of GDP in the next few years. Growth is likely to be persistently negative as households retrench and zombie banks gaze at their navels.

Foreign Lending and the health of the German Banking System

Sometimes, a country might be running a tight ship by having low societal debt, but can still have bank bailouts on account of lending to imprudent countries. The lending could be in the form of a simple loan to foreign corporations or foreign households or it could be investing in securitized assets with the loans to foreign corporations/households as the underlying. When the SDR in those countries gets out of hand, delinquencies on the loans and loan products follow. Because those loans were financed using deposits of the prudent country, the prudent country government has to arrange a bailout of the imprudent banks domiciled in its territory. The prudent country's only fault was that it regulated its banks poorly and permitted them to gamble depositor funds in the global markets. Hence, while assessing the creditworthiness of the prudent country, the nature of the banking system's exposure to foreign borrowers must be assessed. If the borrowers are in countries with high SDR, this factor must be considered in the sovereign credit analysis.

Germany comes to mind when one talks about a country with prudent SDR bailing out imprudent banks. Germany is a country with low household debt. It is home to great companies and SMEs. Instead of funding those companies, German banks incompetently lent to imprudent foreign borrowers whose credit quality they were ill-positioned and intellectually ill-equipped to assess.

German banks have over the last decade completely lost their direction. One reason is that Germany is over banked. The other reason is that regulations have not been put in place to ensure that savings and deposits are protected and not permitted by banks to be gambled away. On the one hand, the country had incompetent banks owned by the different states of

Germany called Landesbanks and some other government owned financial institutions. On the other hand, there were private sector banks like Deutsche bank and Commerzbank that had become like gigantic hedge funds. Both the types of institutions had one thing in common- they were indulging in dangerous games with depositors' money in pursuit of higher yields. By the middle of 2009, the German government estimated that its banks had almost \$ 1 trillion in toxic assets of which about half were in the Landesbanks' portfolios. Some of the Landesbanks were permitted to set up bad banks into which they could off load bad assets.

One of the Landesbanks, WestLB got into big trouble investing in US sub prime related assets. The government of the state of North Rhine-Westphalia had to guarantee some of the bank's borrowing to keep it going. The German government's bailout fund Soffin also had to pump in new capital into the bank. Another Landesbank, SachsenLB was given guarantees on some of its assets before it was taken over by rival LBBW to prevent it from collapse. SachsenLB had bought asset backed securities and derivatives worth 27 times the bank's equity. Commerzbank received capital injections from the government. State run Düsseldorf based bank IKB had to be bailed out to the extent of €9.2 billion to cover the bank's losses from foreign toxic assets. Most bad loans were real estate related- either to commercial or residential real estate in the US, Spain and Eastern Europe. If ever there was a hall of fame for patsies in the financial sector, IKB would occupy a place of honor. Real Estate financing bank Hypo Real Estate had to be nationalized and the government had to provide €100 billion in guarantees. BayernLB, which lost more than €5 billion in 2008, was bailed out by the state of Bavaria. HSH Nordbank was bailed out by the state of Schleswig-Holstein.

A bank, unless it is a international bank, has no business acquiring foreign assets as it is ill placed to assess the credit risk of such assets. Adventurous banks could set up wholly owned

subsidiaries (structured as hedge funds), unfunded by domestic deposits to participate in venturesome foreign activities, trading and rolling the dice. High net worth individuals could be allowed to buy units of those venture funds. These funds would not be allowed to deal with depository institutions except for custodial services.

If domestic deposits are higher than can be used in domestic loans, they could be moved by banks with excess deposits to international German financing institutions regulated by domestic regulators. The funds could be used to fund foreign pursuits of domestic companies. That should be easy for a country like Germany with world class multinationals. This international institution's role would be limited- merely to lend to a company like Siemens for a power project, say in Indonesia, at rates higher than it would lend domestically. The currency risk can be passed on to Siemens which can handle this on account of domestic operations in Indonesia. Then all this lending institution has to do is to monitor Siemens' consolidated financials. The assumption is that as long as the consolidated financials are strong, Siemens' Indonesian operation would not default on its Indonesian loan. After all, if it claimed the loan to be non recourse and defaults on its Indonesian loan, despite the consolidated financials being strong, it would in future find it hard to secure financing for a project in another country, say Brazil. This loan benefits Siemens because, even accounting for currency risk, the company should be able to borrow cheaper from this source rather than borrow in Indonesia. One might argue that this is precisely what organizations like KFW do, but what they do has an implicit state subsidy and export promotion angle which will be illegal under international trade norms. The international financing banks would be privately owned institutions that would lend purely on commercial terms. The only thing they should not be permitted is to make loans to foreign households (Euro denominated mortgages to Polish or Hungarian households does not make sense). It might sound control freakish to insist that financial institutions should lend only to domestic companies, but that is the kind

of credit risk the institution can assess and ensure depositor funds are protected. Else, the banker would wonder into areas where he does not have expertise such as Chinese commercial real estate and put at peril depositor funds. Going by credit rating of those loans/bonds or getting some one else to do the credit evaluation does not work. Let German investors who want to bet on Timbuktu real estate do so through investment in hedge funds- not with depositor funds that need sovereign bail out.

Germany, even after the bailout of the banks will emerge stronger despite the higher SDR. That is because of the extraordinary savings rate of German households and their low debt. So, after the crisis passes, Germany's SDR will come down. But it is predicated upon the country putting in place regulations that ensure that the Landesbanks and the hedge funds masquerading as private commercial banks are not permitted to do foolish things. And it assumes that the country will not bail out countries with high SDR. Else the crisis will happen again.

Poorly regulated banks added to the risk of an already fragile Irish economy. The two largest banks, Allied Irish and Bank of Ireland controlled more than \$200 billion in assets while Ireland's GDP for 2009 was \$177 billion. Even the great Warren Buffett lost money by investing in the Irish banking sector.

Text Box- Sovereign Rating Methodology of Credit Rating Agencies

The sovereign credit rating methodologies of Moody's, S&P and Fitch differ more in form than in substance. The rating criteria incorporate parameters that range from the sensible to the bizarre. Because all the rating agencies have a pretty mediocre track record on the sovereign ratings front, we would not recommend the methodology of any one rating agency over that of another. Rather, to capture the essence of sovereign risk, readers should use the simple SDR- V_{GAP} framework as a starting point for their analysis to drastically improve the

accuracy of their sovereign credit risk forecast. The framework, in conjunction with the country's credit story, can also be used to assess the long term strength of a country's currency.

Moody's Sovereign Rating Methodology

Moody's adopts a three stage process for assessing a country's sovereign risk. The first step involves assessing a country's economic resiliency. Resiliency is assessed from so called indicators of economic strength such as GDP per capita and from the institutional strength of the country based on respect for property rights, efficiency and predictability of government action. The second step involves assessing the government's financial robustness. This involves assessing the ability of the government to mobilize resources, control spending, and obtain foreign currency as well as its susceptibility to event risk. Event risk refers to adverse economic, financial or political events. At the third stage, the rating of the country is determined through peer comparison and slotting the country in comparison to other countries.

Contrary to mistaken belief, a country's economic resiliency is not measured by its GDP per capita. That merely measures the income aspect of the creditworthiness equation. It ignores the spending aspect and the propensity to save. A poor country living well within its means with a low SDR is a far less risk than a rich country with high SDR. And when household savings for retirement is low, it has the potential to require a government bailout of its ill saving citizens to give them basic amenities. High household savings implies a government can support greater amount of borrowings. Low household and corporate debt reduce the possibility of bank bailouts by governments and associated increase in government debt. Low private sector debt also reduce the chance of an asset bubble being in force in a country, which temporarily reveals a government's finances in a far flattering light than it actually is. This is on account of higher capital gains and property tax collection as well as higher

employment during a bubble translating to higher income tax collection. An asset bubble environment does not require high government spending for unemployment benefits.

We have no quarrel with Moody's emphasis on issues such as property rights and predictability of government action. But too much weight should not be given to these issues. Who would have thought that the US government would trample on the rights of creditors of GM and Chrysler? Who would have predicted that the government would nationalize vast stretches of the economy? It clearly points to the fact that in a crisis, government actions tend to be unpredictable. How much better to focus on the likelihood of a crisis occurring through tracking SDR rather than try to predict what will happen once the clock strikes twelve? Our only quarrel with Moody's evaluation of financial strength of a country is it ignores the savings propensity of the private sector. A country like Japan with high household savings can support much higher government debt than, say, the UK.

One issue which Moody's considers in its domestic rating analysis – about the likelihood of the government using quantitative easing and other monetizing of debt techniques – is effectively useless after the 2008 credit crisis. When most countries have used this artifice, it is not a distinguishing parameter between prudent and imprudent nations. In the area of foreign currency ratings, Moody's sensibly does see the linkage between high foreign private sector debt and the ability of a government to service its foreign currency debt (its previous inability to see this ensured its failure to predict the Asian crisis of 1997). Current account deficit does incorporate the behavior of the household and corporate sector along with that of the government sector.

Another glaring weakness of the Moody's methodology is the inadequate attention paid to unfunded government promises as well as corporate sector promises. In many developed countries, when a corporation goes belly up, its pension liabilities are assumed to a considerable extent by government agencies. The higher the extent of corporate debt to GDP,

the higher the possibility of those unfunded corporate obligations falling on the government's shoulder. When one includes the government's own unfunded healthcare and pension obligations, things look horrible in some countries. It is easy to say that in future a government can cutback on those obligations if its finances get stretched. It is harder in practice it in a democracy where the aged population forms the biggest chunk of voters on account of deteriorating demographics as well as the greater propensity of older voters to show up on Election Day.

S&P's Sovereign Rating Methodology

S&P's sovereign rating methodology is not too different from Moody's methodology except that instead of using a three step process, it has a ten step framework. This involves assessing political risk (stability of institutions etc), income and economic structure (economic diversity, income disparity, effectiveness of the financial sector, labor flexibility etc), economic growth prospects, fiscal flexibility (government revenue, surplus/deficit trends, pension obligations etc), general government debt burden, offshore and contingent liabilities, monetary flexibility (independence of central bank etc), external liquidity (structure of current account, reserve adequacy etc), public sector external debt burden and private sector external debt burden.

The S&P rating methodology is a moderate improvement on Moody's methodology, particularly in the attention paid to issues such as contingent liabilities etc. The attention paid to economic growth prospects is sound; a fast growing economy (on a sustainable basis on the back of a low SDR) can definitely support more debt than a slow growing economy. While S&P has added private sector external debt burden in the post Asian crisis world, we fail to understand why the agency ignores the private sector's internal debt burden which is a driving force for potential bank bailouts and stimulus packages. Again, looking at fiscal surplus/deficits on a standalone basis means absolutely nothing. In the 1920s the United

States government ran a surplus, only to be followed by a period of sharp rise in government borrowing on account of having to bailout a levered economy. Likewise, the surpluses of the 1990s vanished once the bubble economy crashed. In the following decade, the US government bailed out the economy twice- first through tax cuts in the early part of the decade and later through bank bailouts, auto sector bailouts and stimulus measures. In Japan in the 1980s, the corporate sector debt hit the roof. This necessitated bank bailouts which bloated the country's government debt.

Fitch's Sovereign Rating Methodology

Fitch's rating methodology, like those of its bigger cousins, does not address predicting the likelihood of a sovereign defaulting. Its methodology seems like a Wikipedia entry on the key data items of a country and less focused on analytical underpinnings of sovereign default. The agency gathers voluminous data on a country's demographic, educational and structural factors, labor market data (such as size of labor force, unemployment by age, sex etc), trade data, private sector data (such as rate of business creation etc), balance of payments data, GDP composition data, GDP growth data, macroeconomic data (such as inflation data), bank lending data, data of country's assets and liabilities etc. In short, the Fitch methodology is geared towards looking at the past experience of a country. Because it does not look at household debt data, the role of burgeoning debt in promoting short term economic growth and the impact of household debt growth on the government tax revenues from capital gains and property taxation, it also fails woefully in forecasting sovereign default until it is too late from the investment viewpoint. What the investor wants from the analyst is an analytical forecast about the sovereign's ability to service its debt. What he gets from Fitch are several tables of past data, that too not data relevant for forecasting future debt servicing ability.

A flaw which is common to all the rating agency methodologies is that they consolidate the debt of sub sovereign entities such as states and municipalities, without clearly understanding

the dynamics in the relationship between those entities and the sovereign. This requires an understanding not only about the constitutional provisions on fiscal relationship between the sovereign and sub sovereign entities but also how the sovereign keeps control over the borrowing of sub sovereign entities. Is there a system of checks and balances which prevents debt of sub sovereign entities from getting out of hand? Does the sovereign ensure repayment of the sub sovereign entity's liabilities through measures such as docking grants to the sub sovereign entities from a central tax collection? Just adding the debt of the sovereign and sub sovereign entities gives one an indication of what happened in the past- it is not an indicator of what will happen in future.

East Asian Crisis: Agencies missed it due to unconsolidated Corporate Debt

The exclusive focus on government finances was the reason that the rating agencies were caught on the wrong foot during the East Asian financial crisis of 1997. Their role in the crisis can be summed up in the following sentence- create complacency in the minds of investors going into the crisis and create excessive panic post the onset of the crisis. Heading into the crisis, the governmental finances of the affected countries- Thailand, Indonesia and South Korea were in decent shape. Any way, why would they not be? As corporate debt was being piled up, asset prices zoomed up, ensuring higher tax receipts. Debt equity ratios of companies in Korea were hitting new heights- sometimes as high as five times. The worst aspect of this corporate debt was that it was in foreign currency and for short tenure. All other factors that rating agencies look at such as inflation were fairly low.

With the corporate capital structure in pre-crisis East Asia being what it was, there was no way the debt could be repaid from operational cash flows- it had to be refinanced or the capital structures had to be rebalanced through asset sales. Corporate debt was usually not taken directly from foreign lenders. That role was undertaken by financial intermediaries called finance companies. These non bank agencies borrowed, usually in US dollars and on

lent it to corporate borrowers for a margin. Most of this money was not used by corporations for corporate purposes such as investment or working capital financing but for real estate speculation. And when money was lent to highly leveraged institutions such as the Korean chaebols, it was no different from silly banks financing stratospherically leveraged buyouts and private equity transactions.

The foreign lenders did not look at parameters such as SDR and V_{GAP} . Because in the recent past the currencies of those countries were practically pegged to the US Dollar, they had dismissed the currency risk they were taking. And because many of the non banks, through crony capitalism mechanics had close relationship with governmental authorities, they assumed they were taking on sovereign risk without currency risk. They failed to spot the error in their logic- if the corporate debt was going to be paid out of governmental resources, the corporate debt should have been consolidated with government debt to get an idea of the true nature of government debt. Though the governments of South Korea, Thailand and Indonesia ran fiscal surpluses in 1996, their respective short term debt as a percent of currency reserves were 135%, 74% and 132%. Their current account balances as a percentage of GNP were respectively -4.8%, -8.3% and -3.5%. Clearly, a lot of the domestic growth experienced by these countries was on account of reckless foreign borrowing, whose pernicious effect could have been avoided by calculating the V_{GAP} of those countries.

This unbridled, unconsolidated foreign currency borrowing caused the asset prices of those countries to zoom, resulting in a jump in tax collection and general feel good and complacency. This halcyon state of affairs attracted more foreign lenders tempted by the prospect of high yield. Each successive new foreign entrant was a bigger momentum player than the previous bunch. Credit analysis, which might have held true a few years back but no longer true on account of piling up of debt, was used to justify this momentum play.

And when the herd jumps in, exactly as they did in the US in 2006, the feel good factor (the so called “consumer sentiment”) hits stratospheric levels.

Obviously, when money was so abundantly and easily available, the people who were involved in the end deployment of funds got careless in calculating the return on capital employed. In fact, for most ventures, the return would be secured not by income from the assets created with borrowed funds but from asset sale (such as a commercial real estate development), once the asset price had gone up. If instead of asset sales, the borrowers had focused on income generated from the asset, they would have been aware that they were badly misallocating capital. And when capital is misallocated, the consequences are borne by creditors. When the first signs of trouble from this scheme emanated, the thundering herd of foreign investors rushed out at the same time, killing the currencies of those countries. Their cardinal sin was ignoring the consolidated financials of the countries they had invested in as well as the ignoring the effects of poor return on capital employed. A decade later, Latvia and a few other Eastern European countries were in a similar position to the East Asian countries. The rapid downgrade of the countries happened once the credit bubble had burst, not while it was inflating in the form of high private sector debt. That is the difference between analysis and momentum based credit downgrades post the occurrence of a credit event.

Consolidated Financials of PPP Projects & Credit Risk of Construction Sector

Construction companies are in a high risk low margin business. Increasingly, contractors are taking on additional risk by investing in the infrastructure projects they are contractors to. Sometimes, as in public private partnerships (PPP) (see Text Box: The PPP Model and the Conversion of Government Debt to Private Debt), they are required to bring a chunk of the funds required for constructing the assets. Usually the structure involves the project being executed out of a special purpose vehicle (SPV), into which the contractor and other parties

bring in equity. The SPV, on the back of the equity financing, leverages itself several times over. This debt is referred to as non-recourse debt because if the SPV does not generate adequate cash flows to service its debt, the lenders do not have recourse to the contractor's or other equity holders' balance sheets. When the contractor holds more than a 50% stake in the SPV, he consolidates the SPV debt on to his balance sheet, but through an elaborate system of wink and nudges, he along with the rating agencies pretend that the debt is not really the contractor's. There is no other explanation for highly leveraged contractors, on a consolidated basis, enjoying investment grade ratings. The wink and nudge gets worse when the contractor holds between 20% and 50% of the equity and uses the equity method accounting for consolidating the PPP investments.

We have no quarrel with the non recourse/limited recourse debt concept. However, if you are going to assume that the company is not responsible for the non recourse debt of the SPV, you have to ask yourself the question what happens to the value of the contractor's equity holdings if the SPV defaults on its debt. The obvious answer is zero. So, if you are going to pretend that the SPV debt is not your debt, you must also believe, as a corollary, that the equity holdings have zero value. The contractor has no recourse to the SPV's earnings until the SPV's debt has been serviced in a timely fashion. If you calculate the contractor's debt equity ratio ignoring the SPV debt as well as by setting the value of the equity holdings at zero, you do get a true and fair value of the gearing in the contractor's balance sheet.

Consider a construction company which carries only investments in concessions of PPP projects on the asset side of its balance sheet (for details on accounting for concessions, see Accounting Box: IFRIC 12 and Investments in Concessions). Each of the concessions involves SPVs which are leveraged to the hilt. If you were a creditor to the construction company, would you go for the "non recourse" mumbo jumbo? Remember, if the debt in the SPVs is non recourse, the value of the investments would be zero, implying there is no asset

cover for the lender. If you consolidate the debt of the SPVs for your analysis, you also have to consolidate the humongous construction risk and the revenue risk of the SPVs for credit analysis. If the leverage ratio at the consolidated level does not pop your eyes, the consolidated execution and revenue risk certainly will.

Text Box: PPP Model and the conversion of Government Debt to Private debt

One of the most interesting financial developments over the last decade and a half has been the entry of private sector players into arenas such as basic infrastructure development, which was once reserved for the public sector. This is referred to as public private partnership (PPP) because the public sector owns the asset and merely transfers the use and maintenance of the asset to the private sector. This can acquire two shapes- in developed countries it could result in the maintenance of an existing infrastructure asset such as a road or a bridge being passed on to a private operator, in return for the right to levy user charges on users of the asset. This right to charge a toll is enshrined in a concession agreement between a government agency, say a municipality, and the private operator. The concession agreement would specify the quality of the service that the private operator must provide and penalties should the operator fail on that front. Earlier, the government agency would have funded the maintenance out of its tax receipts or out of bond issues. This transference of the maintenance of an asset to a private operator, in return for upfront payments, makes a government's finances seem sounder than it is. The private operator now takes on debt to finance the operation. So, to get a true picture of moving money from one pocket of society to another, one has to consolidate the public sector debt with the private sector debt. Else, fiscal numbers of the government look suddenly better while all that has happened is that the household sector, instead of paying taxes for the expenses required for maintenance, pays for it in the form of a toll to the corporate sector. The concession can have valuable mis-priced options in favor of the private sector operator such as the right to build up additional assets

linked to the transferred asset such as four laning a two lane highway, use of nearby real estate assets etc.

In developing countries, the concession takes a different form- it gives a private operator the right to build a new infrastructure, collect toll for a certain period, and transfer the asset to the government at the end of the concession period (the build, operate and transfer model, or the BOT model). Here again, the government does not need to commit resources for building infrastructure- making fiscal numbers seem superior. And the government does not need to borrow for creating the asset, thus burnishing government debt to GDP ratios.

Implemented properly, PPP can make societal assets operate more efficiently as the private operator almost always has an eye on preventing wastage. But if you are going to compare the finances of two countries- one that is gung ho on the PPP model and the other that has the government carrying out the task of building and maintaining infrastructure, merely comparing government finances is not just silly- its plain wrong and leads to wrong conclusions. Obviously, the country that is today executing its infrastructure projects in the government sector can always shift to the PPP model if its finances get strained. So, SDR is the only way to compare the finances of the two countries.

When not done properly, or if a transaction reeks of crony capitalism, PPP transfers a number of valuable options to a private sector operator at low cost. Options, such as the right to develop the adjoining real estate, or to expand the capacity of the current infrastructure (such as a BOT operator currently executing a 500 MW power project having the right to put up another 500 MW at the same site), could have considerable value which are given away as a part of a PPP transaction.

Building the Empire State Building made more sense than financing it

One early contractor who got into trouble through merchant activities was Starrett Brothers & Eken Inc, the builder who became famous for his superb execution of the Empire State Building in New York. The building was the tallest building in the world for four decades since its completion in 1931. Starrett Brothers was incorporated in 1922. The story of the execution of the Empire State Building must be told at the commencement of all complex projects to inspire the project manager and the project execution team to new heights of excellence. The building was completed before schedule and under budget (\$ 24.7 million instead of \$43 million, helped somewhat by the deflationary environment during the beginning of the Great Depression). The project manager executed the project without the benefit of sophisticated project management software that today's managers take for granted. Fortunately, Starrett Bothers did not take the commercial risk of the Empire State Building project. The building was a commercial failure, reaching 85% occupancy only in 1944 and hitting profitability only in 1950. Due to slack business during the Depression, Starrett Brothers started investing in buildings. That was a mistake and the company filed for bankruptcy in 1935. Today it exists as the Starrett Corporation after having had plenty of exciting experiences during its rich history and many more near-death encounters. Today's contractors investing in PPP projects might want to draw appropriate lessons from the company's experiences.

When SNC Lavalin cut itself a cool Deal

Investing in PPP projects need not be uniformly bad for contractors, from the credit risk standpoint. A successful PPP investment was made by Canada's largest contractor SNC Lavalin. The company, which traces its origin to 1911, has an interesting annual target for equity return- 600 basis points over the yield on the Canadian government long bond yield. In 1999, following the Macquarie Bank model of investing in existing infrastructure, thus

eliminating construction risk, the company took a 26.9% equity stake in the toll road Highway 407 located in the Greater Toronto area of Canada. The investment, a 99 year lease to the SNC Lavalin consortium, made sense to the investors (though not necessarily to the government and the Canadian taxpayer) and had a purchase price of C\$3.1 billion. Due to the high usage and the right to expand the highway, the correct value was several times the purchase price and created quite a stir in Canadian politics, with the opposition party making the sale price an electoral issue. The toll collection in the very first year, was higher than forecast. Because SNC Lavalin holds less than 50% of the project equity, the company does not consolidate Highway 407 with its accounts. Nonetheless, in its annual reports, the company gives the details of all financial parameters with and without the Highway 407 investment, thus giving the credit analyst a clear picture for his analysis. The “non recourse” debt taken for the project is also clearly revealed. Though the project generated positive cash flow from day one, it also conveniently generated an accounting loss.

The Changing Face of European Construction Companies

Since the mid 1990s, the big European construction companies such as Vinci of France, Hochtief AG of Germany and Ferrovial and Grupo ACS of Spain have moved away from deploying capital in their low margin construction business to deploying capital in infrastructure concessions under the public private partnership model. The leverage involved in such structures is enormous and contractors are putting their existence at peril. Most of the debt passes off as non recourse debt, but as we have seen earlier, if the debt is non recourse, the value of the equity holdings in the concessions is also zero.

The Grupo ACS – Hochtief AG – Leighton Holdings - Australian Concessions Story -CDO Cubed?

The story of Spain’s Grupo ACS, its equity method consolidation of its holdings in Germany’s Hochtief AG which in turn consolidates its holdings in Australia’s largest

construction company Leighton through a non recourse debt structure, which in turn invests in Australian concessions with the help of non recourse debt would make the CDO cubed structure blush. The extent of wink and nudge going on and pretending that leverage vanishes at each stage does bear similarities with the debt tomfoolery that went under the broad categorization “Structured Credit/Correlation Products” and was driven by the same easy liquidity prevalent during the post dot com era.

In 2008, Grupo ACS of Spain consolidated the financials of its two big equity investments- 25% holding in Germany’s largest construction company Hochtief AG and 25.8% holding in Abertis, a big player in the concessions business, by the equity method. Hochtief and Abertis are involved in several concessions, financed with non recourse debt. Hochtief owns Australian construction company Leighton, not directly, but through a SPV which carries non recourse debt. Leighton in turn has recourse and non recourse debt emanating from its investments in concessions. If you a credit analyst analyzing the creditworthiness of Grupo ACS, chances are you will have the mother of all headaches. If you are doing an honest analysis, you would have to look at each and every concession of Hochtief and Leighton. Else, like the rating agencies, you can indulge in mindless hand waving and not bother about the implications of non recourse debt on the parent company’s credit standing.

Hochtief AG traces its origin to 1870 and was involved in such projects as Germany’s first nuclear power plant. During the Second World War, like many German companies, it used forced labor and built the Führenbunker in Berlin where Hitler committed suicide. Of the six subsidiaries of the company, Hochtief Concessions is the most bothersome from a credit analysis standpoint. Hochtief Concessions, in 2008, had 2 subsidiaries- Hochtief PPP Solutions and Hochtief Airport. Hochtief PPP Solutions designs, finances, builds and operates public infrastructure on a PPP basis. Hochtief Airport holds equity stakes in a number of international airports such as Athens, Düsseldorf, Hamburg and Sydney. In

addition, the company has a financing arm Airport Partners in which it has a 40% stake. In 2008, the company's total consolidated assets amounted to €12.1 billion, which was supported by €2.86 billion of equity. The gearing is shocking, considering that revenues from airport projects are driven by global macro-economic factors. The only way such leverage can be permitted is if the project revenues were guaranteed by the German government.

Grupo ACS, at the end of 2007 had total debt of €16.6 billion, of which full recourse debt amounted to €6.9 billion and non recourse debt amounted to €9.7 billion. The carrying value of the equity method investments in Hochtief and Abertis amounted to €1.28 billion and €1.97 respectively. The total value of equity method investments amounted to €4.23 billion. Considering the leveraging at Hochtief and Abertis, the easiest way out for analyzing the full recourse debt at Grupo ACS is to knock off the non recourse debt ascribable to investments in Hochtief, Abertis and other equity method investments from the liability side and knock off the equity method investments themselves from the asset side of Grupo ACS' balance sheet.

Kajima's questionable foray into European PPP Investments

Japanese construction companies' financials in 2008 were truly shocking. That should be surprising because Japan had a decade of government stimulus projects consisting mostly of construction projects. Kajima, founded in 1840 before the Meiji restoration, is Japan's oldest and biggest construction company. Like other Japanese contractors, the company has given subordinated loans to the projects it has participated in. In financial year 2007, the company had a total debt to capital ratio of 70% and an operating margin of 0.4%.

The company has an UK subsidiary, Kajima Partnerships Ltd, whose principal activity is sourcing, planning and procuring of development projects under the UK government's Private Finance Initiative (PFI). The partnership sets up new SPVs whenever Kajima is appointed as the preferred bidder of a PFI project. Most of the SPVs are involved in setting

up/ maintaining facilities for the Education and Healthcare sectors. Each SPV has a small sliver of equity and a large amount of loans from Sumitomo Mitsui Banking Corp Europe. Kajima Partnership's leverage in 2005 was more than 200 times. Why the bank lent to this levered and risky structure is not clear, particularly, since Kajima is not a part of the bank's keiretsu.

Ferrovial's Balance Sheet Size takes off but Risks spin out of control

Spanish construction company Ferrovial was founded in 1952 as a railroad construction company (Ferrovial is the Spanish word for railroad). Until the 1998 setting up of Cintra with three business lines- car parks, toll roads and airports (later separated out as a separate operation), Ferrovial relied on its wits in the contracting business. From 2000, the company rapidly expanded investing in concessions by taking over the Bristol, Sydney and Belfast airports. In 2005 Ferrovial took over Swissport International, a company that provides ground services at airports. The crowning activity of its investment adventures was the 2006 takeover of BAA with a consortium. BAA was the owner of London's Heathrow, Gatwick and Stansted airports. After the BAA takeover, Ferrovial became the largest airport operator in the world. By the end of 2007, the company had moved so far from its core construction business that 50% of the company's EBITDA came from the airport operator business, 23% from the motorway concession business while only 12% came from construction. The rapid change of the business profile and drastic balance sheet expansion should have worried lenders at the full recourse and non recourse level. But the Alan Greenspan induced jump in global liquidity caused the bankers not to ask hard questions for fear that the borrower might borrow from someone else.

Besides the leverage involved, asset ownership, particularly ownership of infrastructure assets, exposes the owner to regulatory risks. The only way the BAA takeover would have made sense was if the regulator permitted the airport operator to enjoy monopoly over all

London airport operations, including the Heathrow, Stansted and Gatwick terminals. In 2006, BAA was a cash cow on account of its monopoly status in London. With the regulator insisting on the sale of Gatwick and Stansted, any business rationale for the BAA takeover faded. By 2009, BAA could barely generate enough cash flow to service debt. The purchase price of BAA was £10.3b, of which the equity of £4.2 b was brought through a vehicle called Airport Development and Investment (ADI). Ferrovial held 61% of ADI's equity, with the balance being held by GIC of Singapore and France's Caisse de Depot et Placement.

There are only a few ways to make money by taking over an infrastructure asset- a) Leverage it up and hope the credit markets remain benign ("the private equity model") b) Secure the rights to further expansion at a low price ("the SNC Lavelin" model) c) Obtain some form of monopoly pricing power- which is nigh impossible with various regulators looking on and d) improve operational efficiency. Improving operational efficiency is more often than not a theoretical construct divorced from ground reality. So, unless you are financing SNC Lavelin's acquisition of Highway 407, providing debt financing for takeover of infrastructure assets is a mug's game. It is a game Ferrovial's lenders participated with gusto.

Accounting Box: IFRIC 12 and Investments in Concessions

When a government grants a company the right to build, expand or maintain a public infrastructure asset and the company secures returns on the asset by billing either the users of the infrastructure or the government for a particular period of time, the government is said to have granted the company "a concession". The period for which the concession is given is called the concession period. At the end of the concession period, the company is usually required to transfer the assets back to the government. IFRIC 12, issued by the International Financial Reporting Interpretations Committee (IFRIC) in November 2006, deals with how such service concession agreements must be accounted for by the company granted the

concession. Because the company does not own the assets, it cannot account for the assets as “fixed assets”. Rather, the government or its regulator controls the use of the infrastructure asset and retains residual interest in it. Based on the nature of the agreement between the government and the company, the operator of the infrastructure assets will have to recognize the infrastructure asset either as a “financial asset” or as an “intangible asset”.

Financial Asset

If the concession agreement specifies that the infrastructure operator has an unconditional contractual right to receive a specified amount of cash over the life of the agreement from the government, the company must treat the infrastructure asset as a financial asset. This treatment also holds when the government guarantees to pay for any shortfall between the revenue collected from users (say toll from the users of a highway) and the contractually specified amount. The philosophy of how this works is almost like valuation of loans under IAS 39 (discussed in detail in chapter 4). The carrying value of the financial asset in the balance sheet, at the end of the construction period, is the fair value of the constructed asset (cost of creating asset including construction margin) and any payments for securing the concession. This financial asset is written down to zero over the life of the concession.

When the infrastructure asset is treated as a financial asset, in the income statement, there are four key heads - operating revenue, operating expenses, financial income and financial expenses. The operating revenue does not include any income from the government, but merely the revenue received by the company as the operations and maintenance (O&M) agent. Likewise, the operating expenses include only the O&M expenses. Financial expenses include expenses for servicing the debt incurred for securing the concession. The financial income is calculated as a return on the financial assets at the effective interest rate of the contract. The effective interest can be viewed as an IRR of cash flows of the concession, with the initial cash flows being outflows for creating the asset and the later cash flows being

positive on account of income received from the government. Because the government has guaranteed the cash income, the financial income effectively nullifies the effect of the gradual build up of operating revenues. In the early part of the concession, usually the financial income thus calculated would exceed toll collections. This would cause the value of the financial asset in the balance sheet to go up. Then, as the collections exceed financial income, the value of the financial assets fall, until at the end of the concession period, they reach a value of zero.

On the liability side of the balance sheet, over the period of the concession, a head is created for receipt of payment from the government at the end of the concession period on transfer of the asset. This head keeps building up, reaching the value of the handover charge at the end of the concession period. This liability has a negative sign, because it is a provision for receipt of money, not a sinking fund for repayment of debt.

Intangible Asset

When the government granting the concession does not guarantee revenue from the infrastructure asset, the company is exposed to the risk of inadequate usage of the facility and hence inadequate revenues. In this scenario, the company presents the infrastructure asset as an intangible asset on its balance sheet and it reflects capitalized project cost less amortization. The amortization might be viewed akin to depreciation and over the concession period, reduces the intangible asset value to zero. In the income statement, during the operational phase, the concession company shows project revenue (such as toll collection) as operating revenues. The operating expenses are handled in the same way as under the “financial asset” scenario. Again, as under that scenario, a handover provision is created on the liability side of the balance sheet.

Consolidated Risk and Financials of Companies and their financing Arms

Except during times of extreme credit dislocation, there should be no reason for a manufacturing company to have a financing arm to push the sale of its goods. And in times of credit dislocation, SME customers don't really require financing help from their suppliers- their real problem is lack of demand from their own customers. The very fact that a company needs a financing arm, when credit flow through the banking system is normal, should force a creditor to ask the company the question- "why do you need a financing arm? Why not just have tie-ups with a bank or a group of banks to provide financing at dealer locations?" The reply you will never get is "unless we provide financing on non-commercial terms no one will buy our wares". In his book "My years with General Motors", Alfred Sloan vividly describes the motive for setting up General Motors Assurance (GMAC) in 1919. The key takeaway is at that point in time, the banks were unwilling to finance the purchase of an automobile. Half a century later, GM forgot the original motive for setting up a financing arm as have several other companies. Gradually, just as at GMAC, the financing morphed from filling a void in the credit business to an implicit subsidy for pushing sales. The wisdom of separating commerce and financing was forgotten.

Another reason why industrial loan companies provide financing to clients is, on a stand alone basis, the clients are not credit worthy and banks would reject calls for finance. So, what could potentially be a bad loan in a bank's balance sheet is transformed into a potential bad loan on the vendor's balance sheet. Between 2000 and 2002, telecom major Lucent Technologies made provisions of \$4 billion on account of bad debt and customer financing. Lucent has since merged with French telecom company Alcatel.

When department stores start financing their customers, it is worse because it means households are in such a terrible position that they need to be financed even for their basic needs. Post the credit crunch, in 2008, Spain's family owned retail chain El Corte Ingles was

financing half its sales through its own credit cards, making it the largest provider of consumer finance ahead of Spain's largest bank Santander. It is doubtful that the story will have a pleasant ending.

Because there are periodic bouts of instability in the credit markets, companies can have a small financing arm, which finances say 5 to 10% of sales during normal times, but which is ramped up during times of credit market stress. In normal times, the capital adequacy of such financing arms should be very high, say around 60%, which should be brought down to regulatory minimum during tough times. In other words, there should be no capital infusion-financing would be done by leveraging up the financing arm in times of stress, when financially strong firms would find it easier to secure debt financing than retail customers. For companies with financing arms, financing can result in a jump in return in capital employed (on account of higher sales) in the short term- but an analyst should analyze the returns once the loans are fully seasoned. It also makes sense to have a financing arm with a tight common sense driven credit culture if banks do not finance a company's product. In India, a leading finance company occupied a privileged place in financing of pre-owned commercial vehicles because banks in India, in the past, financed only new trucks.

After misadventures, Eastman Kodak, Westinghouse Electric and AT&T sold off their financing arms, but not before these arms caused deep sorrow to their parents. They sold their arms to GE Capital, the finance arm of General Electric. GE Capital's opaque accounting is the prime reason for credit concerns engulfing General Electric. The critical calculation, a company that is on the verge of setting up a financing unit needs to do is whether the likely increased profits from increased sales achieved through financing is expected to be much higher than the likely increased costs on account of delinquencies and capital costs. Remember, financing increases a company's capital base- so the returns must

be commensurate so that the return on capital employed does not fall due to implicit subsidies and delinquencies.

Boeing's Leasing Program to promote Sales is dangerous

Boeing Capital Corporation is a wholly owned subsidiary of airplane maker Boeing. The organization stated that its primary mission is to support other Boeing businesses by arranging, structuring and/or providing financing to assist in the sale and delivery of Boeing products and services. The most important products of the finance wing were operating leases, finance leases, leveraged leases and sale and lease back transactions. In 2009, the company had an A2 rating from Moody's and A+ rating from S&P.

The key to Boeing Capital's credit strength is the support agreement it has with Boeing, through which the parent company provided various types of guarantees such as first loss deficiency guarantees, residual value guarantees and rental loss guarantees. The implications of these guarantees on the consolidated financials are not readily apparent if one looks at the consolidated income statement and balance sheet. For example, the rental loss guarantee had a maximum potential value of \$2.1 billion as on 31st December 2008, related to a portfolio of assets totaling only \$ 2.8 billion. This guarantee would be invoked by Boeing Capital on Boeing Corp should the customers who took aircrafts on lease from Boeing with financing from Boeing Capital back out of their lease contracts.

The risks of these contracts come from several fronts- the credit quality of the airline which has taken the planes on lease, the asset impairment which can occur due to changes in the airplane market (for instance, if a new fuel efficient plane hits the market, the value of the old plane is permanently impaired), fall in international lease rates (as can happen when economies slow down and travel gets curbed). These risks are all very real- at the end of

2008, 11% of global fleet of planes were parked, of which a sizeable chunk might never come back to service.

At the end of 2008, write-offs were a modest \$ 11 million. Asset impairment charges were also at a manageable level of \$35 million. Asset impairment charges were on future lease receivables. If this was considered 10% lower, the impairment charge would have been \$ 8 million higher. However, the most noteworthy item on the balance sheet was assets held for sale and re-lease, which increased from \$ 86 million on December 31st 2007 to \$ 685 million on December 31 2008. The substantial increase was due to return of aircraft leased to Midwest Airlines and ATA Holdings (which filed for bankruptcy). A mitigating point is that of the \$ 685 million, for \$ 305 million, the company had firm contracts to sell or place on lease. However, this item points to the enormous risk the company's books are exposed to if the economy substantially slows. These risks exist on a continual basis- assets carried in the books at \$ 168 million were to be returned in 2009 (\$ 64 million of those aircraft were committed as of 2008 annual report date).

Without the support of Boeing in the form of intra company guarantees, operating income, which include income applied to assets classified as held for re-lease would have been less by \$ 56 million and \$ 55 million in 2008 and 2007 respectively. Allowance for loss receivables are based on historical data of credit rating of customers, collateral value and default rates. All these could prove to be too optimistic. A positive feature of the financing structure is that the company does not take too much asset liability mismatch risk- a 100 basis point increase in rates would cause fair value to decrease by only \$ 1 million.

A pernicious product that Boeing Capital hawks is residual value guarantee. If the residual value assumptions were decreased by 5% (which is definitely not high), it would cause a MTM pre-tax loss of \$ 75 million. Residual value guarantee is seriously the worst product a

financing company can provide, particularly in the area of high-cost capital goods prone to obsolescence.

The ratings of different agencies seemed oblivious of the off balance sheet risks that Boeing Capital was taking and putting at peril the health of the whole company. In 2002, while assigning the A+ rating to Boeing Capital, Fitch was focused on the positive effect on Boeing Capital from the Boeing linkage while ignoring the negative affect of Boeing Capital on Boeing. This was despite acknowledging the growing importance of financing capability for the entire organization.

Unlike borrowings of financing arms guaranteed by the parent, which gets fully reflected in the consolidated financials, risks like residual value risk and severe asset impairment risks in the lease portfolio do not get exposed at the consolidated level. These leases have cancellation risk, re-lease risk and residual value risk. In 2008, roughly 40% of Boeing Capital's assets were operating leases. Theoretically, when a company guarantees residual value, a true sale has not been made. Because of the terrible credit quality of Boeing's customers, these risks are by no means insignificant. In the long run, it is practically impossible for Boeing to have a higher credit rating than the weighted average of the rating of its customers, even taking into account the diversification effect. Because of these risks, it is not prudent to employ too much leverage at Boeing Capital. However, at the end of 2008, the company had a debt equity ratio of 5 is to 1.

Though Boeing has a healthy return on capital employed, it remains to be seen how much of the operating leases and other contingent liabilities come back to haunt the company and reveal the calculated returns to be too optimistic. The balance sheet of Boeing Capital has a whiff of sub-prime to it.

Ford Credit's Interest Subvention Play

Almost half a century after Henry Ford taught the world what mass manufacturing was all about through his Model T, Ford Motor Credit came into existence. The buyers of the Model T got their financing from entities such as the Associates First Capital (which later became a subsidiary of the Citigroup). Ford's financing arm Ford Motor Credit Company, is involved in 3 activities- retail financing, wholesale financing (loans to dealers to buy vehicle inventory), and dealer loans for working capital and improvement of dealer facilities. At the end of 2009, Ford Credit's financing was supported by interest subsidies from the Ford Motor Company. In addition, Ford Credit guaranteed residual values of vehicles on operating leases, which was also supported by the parent company. This exposed the company to the return of leased vehicles, which can be severe when there is a change in customer taste such as a move away from SUVs in 2008. As on 31st December 2008, Ford owed Ford Credit \$2.5 billion on account of interest subvention and \$450 million under the residual value support program.

Supporting vehicle sales through interest subvention and residual value support could not conceal for too long the fact that Ford was churning out stuff no one wanted to buy on a standalone basis. Ford's own unviable cost structure did not help matters. That ensured that in the midst of an auto sector boom between 2003 and 2007, Ford's credit quality continued to worsen. Since Ford Credit relied on support from Ford, Ford's deteriorating credit quality had its impact on Ford Credit. In early 2003, Ford Credit had a BBB credit rating from S&P. By the end of 2008, the rating was several notches lower at CCC+. Because the credit quality was low, Ford Credit could no longer get loans on an unsecured basis and had to rely on the wholesale securitization market for financing.

Financing subvention from Ford constituted a sizable chunk of Ford Credit's revenue and in 2008, it was 29% of the company's revenue. Net financing margin of Ford Credit, defined by

operating leases plus retail income plus interest subventions from affiliated companies plus wholesale finance minus depreciation on operating leases minus interest expense, turned negative in 2008. That was before considering operational expenses, credit losses and actuarial estimate of losses on account of residual value guarantee. When one factored in the residual interest in the securitized assets, it was clear that Ford's financing operation was a mug's game.

A credit analyst must also look for potential new liabilities the financing arms can create. For example, financing arms might take on derivative exposures which might (consciously or unconsciously) turn out to be improper hedges. In 2005, Ford Credit restated the fair value of interest rate swaps for the previous 5 years, which had a significant impact on reported results of 2004 and 2005. When operational cash flows are weak, financing arms dabbling in derivatives might be tempted to roll the dice.

On a consolidated basis, if Ford had spent the money it deployed on residual value guarantees and interest subventions, on R&D to produce better vehicles, the company might have arguably been better off.

The financing Misadventures of India's Tata Motors

Car and truck maker Tata Motors is part of one of India's biggest conglomerates, the Tata group. The group is more than a century old and besides autos, has interests in steel, hotels, chemicals and software services. In fact, the software services arm, Tata Consultancy Services (TCS), is one of the country's most valuable companies.

Tata Motors was a staid manufacturer of staid cars, trucks and construction equipment until the company became enamored about becoming a global company. It became internationally known for the development of the \$2500 car, the Nano. But its bigger claim to notoriety is, egged on by greedy investment bankers, cheap credit, and delusions of grandeur, it took over

the Jaguar and Range Rover “assets” (called thus from an accounting viewpoint) from Ford. In 2009, the Chairman of the Tata Group himself admitted that the takeover of Jaguar and Land Rover was not his smartest deed. Ford did not have any luck with those companies it acquired in 1989, and when it saw a sucker emerge on the horizon, quickly passed on the explosive stuff to Tata Motors. Jaguar and Range Rover’s business model is built around unbridled consumption in developed countries. When these companies did not do well even in an environment of increasing household debt, chances are they would do worse in an environment in which household debt must come down. Earlier, Tata Motors had acquired the commercial vehicle business of South Korea’s Daewoo when the chaebol got into trouble doing too many things funded with debt. That acquisition, at least had the merit of being rooted in common sense. On account of the Jaguar and Range Rover takeover as well as defaults from its vendor financing portfolio, the company’s outstanding debt jumped from Rupees 33 billion in FY 2006 (year ending March 31st 2006) to Rupees 350 billion in FY2009. On account of losses, the shareholders’ equity fell from Rupees 61 billion to Rupees 59 billion.

Our main focus is on Tata Motors before it made the foolish acquisition of Jaguar and Land Rover in 2008. Tata Motors has a funny relationship with financing its sales. The company had a finance subsidiary, which it amalgamated with itself from April 1 2005. It seemed more like a way to hush up the increasing delinquencies at the finance subsidiary. Then, a couple of years later, the company started a 100% owned non bank finance company – Tata Motors Finance (TMF). In FY 2007 and FY2008, Tata Motors and its subsidiaries financed around 34% of the company’s sales.

One of TMF’s vehicles for securing finance was securitization. Indian credit rating agencies are quite stringent in their specifications of credit enhancement for securitization transactions, requiring it to be several times expected delinquencies. For instance, on account of TMF’s

increased delinquency experience, rating agency ICRA (Moody's holds around 30% of ICRA) required ever increasing amount of cash collateral to be provided to protect investors of the securitized paper from increased delinquency. (For full disclosure, this author was employed by ICRA for an extended period of time). ICRA specified that TMF needed to provide about 35% credit enhancement for securitization transactions. So, for every Rupees 100 of outstanding principal securitized, cash collateral of Rupees 35 had to be provided in an escrow account by the originator of the transaction. This dramatically high credit enhancement changed the economics of securitization transactions for entities experiencing high delinquencies. At the end of FY2007, the Tata Motors Group supplied Rupees 6.38 billion of guarantees for securitization transactions, Rupees 4 billion of cash margins and around Rupees 1.5 billion of retained subordinate interest in such transactions. In the following year, the amount of guarantees increased to Rupees 10.95 billion, while the cash margins expanded to Rupees 15 billion. Clearly, this state of affairs could not go on forever. It is no point doing a securitization transaction if post securitization, most of your funds continued to be tied to the transaction. Meanwhile, by September 30, 2008, loans 90 days past due hit 15.2% at TMF, while those 180 days past due hit 9%. Clearly, providing financing was proving to be a costly pursuit for Tata Motors. Though it helped sales, Tata Motors was better off foregoing sales to potential customers who could not secure bank financing.

The Tata group has another finance subsidiary, Tata Capital. Though this company has no relationship with Tata Motors, and Tata Motors does not consolidate its financials, it had an important role in Tata Motors' destiny. It bought pools of auto loans from TMF. So, here was a clear case where one had to go beyond the consolidated financials of the company to understand the whole credit dynamics. In fact, in credit analysis of Asian companies, as we discuss later, one has to go beyond entities whose finances are consolidated and look at the

finances of all companies of the same promoter group. In the case of the Tata group, unlike most such groups, that news is good for creditors. Firstly, the Tata group management is known for integrity unlike the management of most Indian conglomerates and the management would do its utmost to pay off creditors. Secondly, the holding company of the Tata Group, Tata Sons owns more than 70% of TCS, as we had discussed at the beginning of this section. When debt from the foolish Jaguar acquisition had to be serviced, the group sold off some TCS shares to ensure repayment. The market capitalization of TCS ensures that the consolidated debt of the Tata Group is serviceable. In addition, the group does have some strong companies, which though underperforming at present, would definitely do better in the years to come. So, even at the bottom of the credit crisis in 2009, on account of the financial strength of the consolidated group, one could have been sanguine about credit exposures to Tata Motors and its finance subsidiary.

Harley Davidson ventures into Sub-prime Financing

Harley Davidson has been an iconic motorcycle brand since 1903. For most of its existence, the company relied on the quality of its products to push product sales and not by providing financing to un-creditworthy customers. Harley Davidson was one of the two motor cycle manufacturers of the US to survive the Great Depression. The company did go through some problems in the 1970s and 1980s and survived a near bankruptcy experience in the mid-1980s.

Harley Davidson Financial Services (HDFS) was founded in 1992. From founding till 1999, the company was known as Eaglemark Financial Services. HDFS' importance to Harley Davidson continued to rise- in 2003, about 38% of Harley's bike sales were financed by HDFS. By 2008, the proportion was more than half. Between 2003 and 2008, the credit profile of the HDFS borrower kept deteriorating. During the days of easy credit till 2007, Harley used its financing arm to give loans to sub-prime borrowers, with such borrowers

constituting one-third of all loans. Interest rates on some of the loans were as high as 18%. There is a critical threshold beyond which financing rates do not cover the credit losses, because at that rate, the chance of delinquency is almost 100% and financing is not possible. The finance division's debt went up almost 4 times between 2003 and 2008, with sharpest deterioration between 2007 and 2008.

In the fourth quarter of 2008, HDFFS took a \$35.1 million write down on retained interests in securitized transactions (the company like many US financing arms relied heavily on securitization transactions) and a \$ 28.4 million write down to the fair value of finance receivables. Because the securitization market seized up in 2008, the company's "finance receivable held for sale" tripled from \$ 781 million at the end of 2007 to \$ 2.4 billion at the end of 2008. Due to this, short term borrowing increased, subjecting the company to asset liability mismatch risk in addition to the humongous credit risk. As usual, it took the rating agencies a long while to realize that trouble was round the corner. The company was rated A by S&P throughout 2008, and downgraded in January 2009 by two notches to BBB+.

Things got really tough for Harley in 2009. In February, the company raised \$ 600 million of 5 year debt financing from Warren Buffet's Berkshire Hathaway and another investor at 15%. The notes were rated BBB+ by S&P. Harley Motor Company was the entity that did the borrowing, but the funds were for HDFFS to on lend to customers at low rates to promote sales. Apparently the company had not understood it was on the wrong path, and insisted on getting deeper into trouble.

As mentioned earlier, providing financing can boost return on capital employed in the short term, till the loans get fully seasoned or the economy slows down. Harley managed to maintain a RoCE of around 20% till 2007. This fell sharply to 12.6% in 2008. (Remember, the company borrowed from Warren Buffet at 15%). This will have unfortunate consequences for the company's stretched balance sheet resulting in the company getting

further leveraged. Harley management did not help matters, when in halcyon times the company resorted to bouts of share buyback, that ensuring that return on equity, not factoring in increased risk, looked very healthy.

If the money that had been spent in financing credit losses at HDFFS had been used in product improvement and re-branding to appeal to the new demographics of the United States, the need for large scale financing to sub-prime borrowers would not have arisen. The Harley story reiterates the fact that financing and financial engineering are no substitutes for good products and good management.

Volkswagen Bank: a wonderful way to pass consolidated Risks to the German State

Potentially the world's number one car maker in terms of sales, Volkswagen's biggest shareholder is the state of Lower Saxony in Germany. Through a law, that will be repealed to conform to European regulations, the German state owns 20% of the voting shares of Volkswagen. Volkswagen is the owner of companies that make the Bentley, Audi, Scania, Skoda and now, even the 911s. Within the Volkswagen car division are brands such as the Passat, Golf, Jetta, Tiguan etc. The company's financial services subsidiaries include Volkswagen Leasing, Volkswagen Credit and above all Volkswagen Bank, a full fledged bank that can accept deposits in Germany. In short, this was as much a linkage between commerce and banking that you can get in the modern world. 70% of Volkswagen car sales in Germany were financed by its financing arms. Some of the financial services businesses include contracts to buy back vehicles at residual values fixed at the inception of the contract. As an automobile maker, in the recent past, the company has performed reasonably well. Not only is it a formidable force in markets of yesterday, it is acquiring a strong profile in the markets of tomorrow. But the auto industry is in a flux, with changes in technology, M&A and strategic relationship among global manufacturers coming to the fore in the global

landscape. In this context, Volkswagen's bank and financial service arms might prove to be a decisive advantage. For some reason, European regulators have not been that forceful in their objection to using depositor funds for grabbing market share. Obviously, loan underwriting standards at the bank would not be as onerous as at a standalone bank not linked to a commercial entity.

Volkswagen's financial services include dealer and customer financing, leasing, banking, insurance and fleet management. Between 2003 and 2008, Volkswagen's income, in Euros, was up 34%. During the period, the long and short term assets of the financial services businesses were up around 45%- clearly finance was becoming more and more important for pushing sales. In the five years between 2003 and 2008, return on capital employed at the Volkswagen group have been consistently mediocre- fluctuating between less than 1% to less than 5%. But this does not matter too much because the group has been able to push a lot of financial risk onto the Federal Republic of Germany. It builds new plants with fairly low interest loans from government agencies such as KfW and multilateral agencies such as the EBRD, where the Federal Republic is a big stake holder.

But it is in the financing space that the company makes best use of implied sovereign guarantees to secure low cost financing. At the end of 2008, Volkswagen Bank GmbH had €12.8 billion deposits, a €3.2 billion rise over the number at the end of 2007. Obviously, the depositors expect the Federal Republic to bail them out if things come to such a pass. Because of that, they are content to get a lower yield. The implicit guarantee is reflected in Volkswagen Bank's credit ratings- it enjoys a one notch higher credit rating than Volkswagen AG. Normally, finance subsidiaries pay a higher interest rate on their liabilities than their parent- it is exactly the opposite here because of the shrewd manner in which private sector risk has been transferred to the sovereign. In addition, the bank did two big securitization transactions – one for \$ 2 billion and the other for €1.75 billion in 2008, to access further

cheap funds. The bank had a debt equity ratio of 8- so with a small equity exposure, the company has been able to secure many times more cheap financing to fund the sales of its products. In 2008, despite a non mind blowing return on capital employed of 3.4%, Volkswagen had been able to secure a highly respectable Return on Equity of 14.2%. The return on capital in 2008 was lower than 2007, but the return on equity was higher than 2007. The sheer importance of this link to the government was highlighted in October 2008 when the Federal Republic guaranteed all bank deposits. In February 2009, Volkswagen Bank received a guarantee facility from the German Financial Market Stabilization Fund to refinance vehicles up to € 2 billion.

John Deere ploughs Sales through Financing

Deere & Company (collectively called John Deere) was founded in 1837, as a one man blacksmith shop in an era of the American “can do” spirit, creating over the next century, so many innovative companies. Deere is a leading maker of agricultural equipment, commercial and consumer equipment (such as garden tractors) and forestry equipment. It also has a large equipment finance company- John Deere Credit, which has operations in 17 countries. Despite minor fluctuations, John Deere Credit’s rating fluctuated around A2 from 1999 to 2009. Deere had an agreement with its financing arm wherein it has agreed to ensure that the finance company’s ratio of earnings to fixed charges at all times was higher than 1.05.

Between the year ending October 2004 and the 12 months ended January 2009, Deere & Company’s total debt equity ratio jumped from 227.6% to 395.2%, a rise of almost 74%. However, the return on capital employed remained almost flat over the period – it was 6.5% in the period ending October 2004 and 5.8% in the period ended January 2009. The total debt of the finance arm jumped from \$ 11.5 billion to \$ 20.2 billion. The debt of the equipment operation went up moderately from \$2.2 billion in 2004 to \$ 3.04 billion in 2008.

Net sales of the equipment division jumped from \$17.7 billion to \$25.8 billion in that period- a 45.8% growth. The growth in equipments financed grew much faster- 75.6%. So, financing seems to be the driver of sales growth.

To some extent, Deer's financing is less risky compared to those of other financing companies. Unlike for cars, the residual value risk is lower. It still would have been better if the company tied up with a bank for financing its products.

Promoting upfront Fee Income through financing

The US' Glass-Steagall Act of 1933 was one of the most sensible pieces of financial legislations anywhere in the world. By separating commercial banking from investment banking, it ensured that fee seeking investment bankers did not use financing as a bait to secure deals, thus putting at risk depositors' money. The Act also created the Federal Deposit Insurance Corporation, which protected deposits that could no longer be gambled away by investment bankers. By extension, the repeal of the Act in 1999 was a very foolish measure, which set the ball rolling for the huge credit losses over the next decade. Losses came on account of several reasons. Firstly, to secure huge fees from M&A deals, the investment bankers promised loans for takeovers from their commercial banking arms. The higher the leverage in the deal, the more would be the fees. The fees are booked upfront but credit losses happen much later. Likewise, investment banks got huge fees from structuring loans into securitized products. Done rapidly, this is better than loans for M&A because in this case, the loans get pushed to other parties quickly. But investment banks which do this for a living would always have an inventory of the loans on their books- thus exposing them to big losses when the news of losses on similar assets spreads. So, when the so called universal banks secured upfront fees from deal making and structuring and pushing potential losses from loans used to secure mandates to another day, creditors needed to have been worried. Creditors cannot always rely on a bailout as happened in cases such as Bear Stearns. With

public finances in many countries deteriorating markedly, the likelihood of creditor bailouts become smaller and smaller in future. And the tax payer's patience is wearing thin.

Historically, merchant banks were called thus because they provided debt and equity financing to their clients. Because the merchant banks were private firms, they were extremely careful how the capital they supplied to companies was utilized. In fact, more often than not, the financing was a shrewd investment because of access to non public information. In short, it was not foolish speculation but very prudent vehicle for securing investment returns. The financing income was a bonus springing from access to the client who already provided fee based income. When the Schroeders and Warburgs invested in a deal, not only were they able to secure some investment returns without taking on risk (from their differential access to information, they could really assess risk), but they also provided confidence to other investors who would co-invest.

This is a very different business model from the way a modern investment bank uses financing. The modern investment bank dangles the possibility of financing to entice companies to get into M&A transactions that never made too much strategic sense in the first place. The aim was to secure fee based income that could be booked immediately and translated into bonuses. Shareholders can take their write downs on the value of those loans much later, when the "M&A advisors" would have looted and scooted (perhaps they need not even scoot- they could ascribe the cause of the loan turning bad to "the economy taking a turn for the worse" and not because the transaction, with poor return on capital employed should not have been financed in the first place).

Two institutions which prodigiously used financing (provided by retail depositors) to secure M&A and other mandates were Citigroup and Switzerland's UBS. For Lehman Brothers, the losses on leveraged loans supplied by the bank were just another of the numerous ventures that had soured. Even without access to depositor funds, the investment bank got

into this game in the sound knowledge, that losses would happen another day, and would be borne by shareholders/creditors. Alas, when the economy goes south, too many businesses turn sour at the same time (some one should calculate the correlation of different businesses turning sour at the same time instead of the foolish pursuit of trying to calculate the default correlation of two companies for valuing CDO tranches). The full extent of the losses on leveraged loans for M&A will be evident only in the next few years as the banks which made those loans have adopted “an extend and pretend” philosophy, wherein, when the loans become due, the banks extend the tenure of the loan and pretend a default had not occurred. Japanese banks also did this in a big way in the 1990s. But the goose of the banks who overplayed the M&A financing game is well and truly cooked. Offering financing in order to secure business, whether the business involves sale of goods (such as cars) or services (such as M&A advisory) has seldom had a good outcome.

ABB gives up on Financial Services

ABB is a leading European engineering company, formed by the merger of Swedish company Asea and Swiss company Brown Boveri. The company is chiefly involved in producing equipment for power generation and electrical engineering. ABB’s financing arm, ABB Financial Services supported the company’s business through structured finance, project finance, leasing and insurance activities. Besides financing clients, the company also rolled the dice and did proprietary trading. Insurance business, within industrial groups can be used to manage earnings through under reserving for claims (as explained in detail in chapter 4, insurance operations can under-provide for claims just as finance companies and banks can under-provision for loan losses). After losing its shirt in the financing business, ABB sold the structured finance arm to GE for \$2.3 billion. Post the sale of the financing business, ABB in 2002, recognized a loss of approximately \$190 million from the discontinued operations.

The rating agencies did not have a clear understanding of the consolidated risk ABB was running with its finance and other operations. S&P had rated ABB AA- at the beginning of 2002. Within a year, the ratings were seven notches lower at BB+. There was no fraud at the company's end behind whose veil S&P could hide its improper understanding of ABB. From the company's 2002 Annual report, it was clear that even after the sale, ABB continued to have contingent liabilities on account of financial guarantees issued with tenures between 1 and 18 years for \$ 207 million on the exposures that were sold. The sale agreement also gave GE the right to require ABB to repurchase certain designated assets upon the occurrence of certain events by February 2004.

China & Vendor financing gone amok

If a bank lends to a corporation or a household for a productive activity, chances are high that the loan would be repaid. If on the other hand a bank lends for supporting the current consumption of a borrower, to hope for repayment is fairly optimistic. When the same theme is translated into relationship between two sovereigns, the issue is more complex. The variation is more interesting when the country which does the borrowing for consumption has done so in its own currency, with the lending country treating the loan as part of its foreign currency reserves. Obviously the sovereign borrower is not going to default- he can do something which if done by a lesser mortal can land him in jail- he can legally print his own currency. Sure, the borrower can create a few Microsofts and use the taxation of wealth created to pay off the debt without cranking up the printing presses- but that belongs to the realm of wildcatting, not what a creditor should be doing while evaluating credit quality. So, short of such great ventures succeeding in the US in the next few years, China can expect to be repaid in "Monopoly money", which might look and feel like money, but is anything but. If China wanted to explore venture capital financing in the US, they could have directly invested in such companies (perhaps the US government might not have permitted it, but that

is a separate matter)- not bought Treasury securities backed by the US government. In short, China took venture capital risk for risk free returns of a soon to depreciate currency. In 2009, the Chinese government authorities started expressing concern about being repaid in a bastardized currency- but they have no one else to blame but themselves when they resorted to current consumption financing with the aim of generating employment opportunities at home. At the very least, the Chinese should have resorted to some barter financing, by buying up wheat or chicken or pigs from Mid-West farmers to feed their undernourished country side instead of accepting funny money.

Non Performing Loans: the Credit Entropy of Credit flowing in an unnatural Direction

The natural direction of flow of credit is towards avenues in which the return on capital employed is highest. So, if a pension fund of a rich country invests in a well structured project in a developing country, which translates to higher output and production of goods that are undersupplied, the chances of the fund getting repaid is high because credit is flowing in a natural direction. When credit flows in an unnatural direction- that is towards a purpose, a sector, a corporation or a country where the return on capital is low, the entropy of such artificial pumping of credit has to generate non performing assets (NPAs) in the banking system somewhere. If the country which is doing the pumping of credit in an unnatural direction (perhaps through currency manipulation) is one with high savings rate and one where the accounting at the bank branch level is opaque, the effect of this unnatural flow of credit will not be apparent to everyone. This, in brief, is the saga of trade relations between the United States and China.

In the 1980s, when western banks pumped credit into emerging markets, not towards projects which would generate high returns but for supporting current consumption, it soon translated into bad loans for those banks. These banks had to be bailed out by western tax payers through the IMF mechanism. The same process will be repeated in the China saga with some

changes in the plot. One of the following two things will occur. Either the American households, in an attempt to clean up their balance sheets will cut down current consumption of discretionary items. That will result in sharply lower volumes for Chinese producers, translating into NPAs for Chinese banks. Else, increasing trade disputes will cause the artificial exchange rate to give way. That will not only sharply reduce the value of China's reserves but will hit the Chinese producer with a double whammy- lower realization and also lower volumes. The latter scenario would cause NPAs to go up to a greater extent than under the first scenario. China's bad loans amounted to \$ 911 billion as per an E&Y report in 2006. Most of it would have been linked to deploying resources in low return projects domestically. The next wave of bad loans would be due to trade linkages and the unnatural flow of credit. In thermodynamics, when water is pumped in an unnatural direction against gravity, the entropy of the universe goes up sharply. In credit financing, credit pumped in an unnatural direction will cause the NPAs of the banking system to go up somewhere in the universe. No prizes for guessing where the NPAs are being housed now!

Accounting Box: Accounting for Consolidating Financials

Credit Analysts need to understand the intricacies involved in the consolidation of financials, either of a wholly owned subsidiary, a joint venture entity, an investment in an associate company or an entity that was taken over with fanfare in an M&A transaction. That is the key to understanding whether the value of assets, as shown in the balance sheet, would be preserved or would deteriorate. Also, it will help clarify issues such as the restrictions on flow of cash from those entities to parents, the rights of creditors of those entities etc. Typically, in the case of an acquisition, a company reveals in its balance sheet the acquisition at cost. If a company has less than 20% stake in another company, the value of that holding is usually shown at fair value in the balance sheet. If the holding is greater than 50%, the company fully consolidates the financials of that entity, with adjustments for minority

interests. In the case of joint ventures, the companies holding stakes in an entity consolidate the holdings in the entity in proportion to their holdings. It is in the case of holdings between 20% and 50% that things get tricky. Here a company has significant but not overriding control. For consolidation of holdings in such an associate, the company uses the so called equity method for financial consolidation, which is discussed under the head IAS 28.

IFRS 3

The International Financial Reporting Standard (IFRS) 3 “Business Combinations”, establishes the principles of how an acquirer of identifiable assets (and with it any liabilities assumed) needs to present those assets and liabilities in his financial statements. It also describes how “goodwill” from an acquisition is to be presented. “Goodwill” is the asset that comes into existence when an acquirer pays for the acquisition a value higher than the book value of the acquired business. It represents the hope of the acquirer that the return from the acquisition would be higher than what is implied by the financials of the acquiree. The other side of goodwill is “bargain purchase” where the acquirer gets the assets at below book value of the assets. IFRS3 is applicable for a business acquisition- not an asset acquisition. If the asset acquired is not a business, there are unlikely to be contingent liabilities from the acquisition. When a business is acquired, all known and unknown liabilities are assumed by the acquirer. For instance, companies which acquired other companies later found out that they were responsible for the past sins of the acquiree such as asbestos liabilities and environmental liabilities. From a creditor’s viewpoint, asset purchases (hopefully from the liquidation of a company) are superior to business acquisitions. IFRS3 requires that acquiring companies do not recognize post acquisition costs with the acquisition costs, but handle those costs after the acquisition. This prevents companies from reporting artificially good results post the acquisition (at least in the next few quarters) which can mislead the financial analyst.

The chief fears of a credit analyst in an acquisition are whether the acquirer has overpaid for the acquiree and whether the acquirer will be able to integrate the acquiree's business with his own. In addition, any change in the capital structure of the acquirer towards more leverage would be worrisome. IFRS 3 mentions indemnification assets- asset that an acquirer can recognize in his books should the seller of the business contractually indemnify the acquirer against contingencies or uncertainty related to an asset or liability. This asset is to be stated on acquisition date at fair value. The usefulness and valuation of this asset is linked to the credit worthiness of the seller of the business. If the seller is not very creditworthy, the usefulness of indemnification assets is questionable. In an acquisition, there could be a contingent consideration component. There could be cases where the acquirer has to pay out more to the acquiree if a certain target such as an earnings target is met. If the contingent consideration takes the form of a cash payout, the credit analyst needs to factor this in his analysis. If it involves payment in shares of the acquirer to the shareholders of the acquiree, it does not impact the creditor because it merely transfers value from one set of shareholders to another.

A popular misconception is that when an acquirer acquires a company with shares and not with cash, all is well from a creditor standpoint. That is not true. An acquisition comes with contingent liabilities nested in the acquiree's business model. Also, if the acquiree's business prospects turn out to be poor, it might end up dragging down the acquirer with it.

IFRS 5

IFRS 5 deals with representation of non current assets held for sale and discontinued operations. From the credit view point, besides studying the impact on the credit story of the entity post the disposal, one needs to know the earnings impact on account of the sale. Assets whose value a company plans to recover through sale rather than through earnings are referred to as assets held for sale. It is important to be able to assess the correct value of

these assets- one can get some idea of the value of the assets from the disclosures required under IFRS 5 on the earnings attributable to those assets.

IAS 24

International Accounting Standards 24 deals with “Related Party Disclosures”. The standard clearly defines which entities are related parties to a company, and it goes beyond corporate control. This standard highlights the importance of going through disclosures in a financial statement without focusing only on income statement and balance sheet numbers. We have seen several cases (particularly in Asia), where companies grant inter-corporate loans to weak companies of the same promoter group through out the year, but on balance sheet date, somehow, these loans are repaid. If one looked only at published outstanding inter corporate debt numbers, these risky loans would not be revealed. But as per IAS, these transactions have to be disclosed as inter-corporate transactions. In some countries, where International Accounting Standards or similar stringent requirements are not prevalent, sometimes auditors in their notes do highlight these nefarious happenings. These risky inter corporate loans might be repaid under normal circumstances but when an economic downturn hits, these hidden loans come back and haunt the creditors of the company.

IAS 27

IAS 27, “Consolidated and Separate Financial Statements”, is the crux of this chapter- one needs to have a clear idea of the financials of a group of companies under the control of a parent. This accounting standard does not deal with investments in associates (companies where the corporate under consideration has significant shareholding but does not exercise overriding control) or joint ventures. It is not necessary for a company to own more than 50% of the shares of a company to exercise overriding control. In the event of overriding control without a higher than 50% shareholding, consolidation of the financials of that entity

is required. As a corollary, if even with significant shareholding a company does not exercise overriding control, consolidation is not required. Again, as in the case of the other accounting standards, attention must be paid to disclosures under this standard to get a good idea of the economic substance of the relationship among different entities and the impact it can have on credit quality.

IAS 28

IAS 28 deals with investment in associates over whom the company exerts significant influence. This typically happens when the company owns between 20% and 50% of the associate. In this case, one has to use the “equity method” for showing the value of the holdings in one’s balance sheet. Under the equity method, investment in the associate is carried in the balance sheet at cost, with this carrying amount adjusted for the investor’s share in the profit and loss of the associate. Dividends received from the associate reduce the carrying amount of the investment by that amount. Adjustments must also be made to the carrying amount if the associate makes changes directly in its balance sheet due to revaluation of assets, currency translation effects etc. The adjustment done to the carrying amount is proportionate to its holding in the associate. The company recognizes its share of the associate’s profit and loss in its income statement.

A company should cease to use the equity method the moment it ceases to have significant influence over the associate. From that point, it must show the investment in its balance sheet at fair value as per the diktats of IAS 39- to be discussed in detail in the next chapter.

IAS 31

How interests in joint ventures must be reported in financial statements is discussed in IAS 31. The standard explains the characteristics common to all joint ventures- two or more venturers are bound by a contractual agreement and the contractual arrangement establishes

joint control. IAS 31 talks about jointly controlled operations, jointly controlled assets and jointly controlled entities. In the case of jointly controlled operations, each venture recognizes in its financial statements the assets it controls and the liabilities it incurs as well as the expense it incurs. It books its share of the revenues of the operation. Jointly controlled operations could be among competitors such as newspapers that have their own editorial resources but pool operations such as printing, distribution etc. In the case of jointly controlled assets, each venturer recognizes its share of the jointly controlled assets and any liabilities that it incurs. In the income statement, it books the expenses it incurs on the assets and its share of revenue produced from the assets. Jointly controlled assets could include pipelines owned by a number of oil companies.

In the case of jointly controlled entities, the venturers are permitted to use proportionate consolidation or the equity method for valuing their holding. In the proportionate consolidation method each venturer recognizes its share of the assets, liabilities, expenses and income of the joint venture. We had already discussed the equity method earlier. The standard encourages the use of the proportionate consolidation method over the equity method as it reflects better the economic reality of the set-up.

Consolidated Risk of Japanese Keiretsu's Main Bank & Equity Method Accounting

Before Japan's loss in the Second World War, Japanese industry was controlled by large family owned monopolies called zaibatsu. During the occupation of Japan, General Douglas MacArthur, the Supreme Commander of Allied Forces, dissolved the zaibatsu. The zaibatsu reorganized themselves around the concept of keiretsu. Each keiretsu centered around one bank (also called the main bank), which lent money to that keiretsu's industrial companies and held equity stake in those companies. Keiretsu groups also had a trading and an insurance company. The keiretsu structure caused the dominance of credit over equity in corporate Japan's capital structure, with debt to assets hitting 86% in 1970.

From a societal viewpoint, the keiretsu's main bank concept involves a dangerous combination of commerce and banking, which puts tax payers at risk of bailing out depositors of failed banks on account of misallocation of credit. Prior to the era of deposit guarantee, such combinations of banking and commerce put depositors at risk. The industrial loan companies of the USA (including companies such as Ford Credit that we had talked about earlier) do not take public deposits and rely on wholesale funding. Germany does not only allow this dangerous liaison by permitting its car manufacturers such as BMW and Volkswagen to promote banks, but in October 2008, after the Lehman credit event, guaranteed those depositors, thus permitting the car makers to grab market share by having the risk underwritten by the German tax payer. When a bank has an equity stake in a manufacturing company, it leads to misallocation of credit- credit is deployed not on a return on capital employed basis but on a venture basis, or worse, to protect the value of the equity holding. German banks, unlike their Japanese counterparts derive their power not only from shareholding in companies but also from holding of proxy votes on behalf of shareholders who place their shareholdings with the banks for custodial purposes. The permission to use shareholders' proxies is obtained annually by banks, although they must inform the shareowners of their voting intention.

Bank's equity holdings can increase, not only on account of conscious decision to increase their shareholding, but as a result of imprudent lending in the past. In India, the so called development banks were left holding a chunk of equity on account of swapping non-performing loans for equity. Of course, unless the company got into trouble through excessive leverage but had sound businesses, the whole exercise is a sham because if a company cannot pay interest out of operating earnings, it is highly unlikely that the equity would have value. Swapping equity for debt of companies which have negative operational

cash flow never makes sense and the holding has the same value as an out of the money call (that is purely the time value).

The second danger of the Japanese main bank concept is that the bank also undertakes the role of a venture capitalist, providing risk capital to keiretsu members for their innovative products. It would have been better for the Japanese taxpayer if this activity had been undertaken by a separate entity within the keiretsu which did not rely on bank depositors for funding.

In the post-bubble Japan of the early 1990s, equity stakes of main banks in keiretsu members constituted a very sizeable portion, and in many cases exceeded their Tier I capital. Tier I is the purest form of bank capital, most of which is constituted of hard equity. Tier II and other inferior form of capital are basically debt and debt like instruments. So, for these banks, it is not possible to assess bank credit quality by looking at the loan book only- one has to look at the investment book too. And since a sizeable chunk of the loans were to companies in the investment book, as part of the keiretsu compact, there was a formidable correlation between loan book credit quality and valuation of the investment book. Towards the end of the 1990s, the ratio of Japanese banks' equity holdings to capital exceeded 150%. Belatedly, in 2002, the Japanese government capped the ratio of equities to Tier I capital at 100%. Since that directive, banks started reducing their shareholdings. But any precipitate selling would cause a stock market crash and further reduce the banks' Tier I capital.

Investments in affiliated companies of the keiretsu (companies where a bank had between 20 % and 50% holding and had the ability to exercise significant influence) are accounted for by the equity method of accounting (see Accounting Box : Accounting for Consolidating Financials).

What was the Bank of Tokyo Mitsubishi UFJ's (MUFJ) Tier I Capital Ratio in 2008?

MUFJ is part of a keiretsu that includes companies such as Mitsubishi Corporation, Mitsubishi Motors, Kobe Steel, Mitsubishi Heavy Industries and a whole host of other companies involved in industrial activities and other activities such as insurance. The keiretsu can trace its roots to the Mitsubishi zaibatsu which played a sterling role in Japan's rise to be a leading industrial and military power.

The heyday of the keiretsu was the 1980's bubble economy. Sharp increase in equity valuation, as the Nikkei 225 hit record highs, ensured a sharp increase in the Tier I capital ratio. Added to this halcyon state of affairs was the fact that the non performing loans were miniscule in a flourishing economy. When the Japanese stock market crashed in the early 1990s, this virtuous cycle reversed, with capital ratios falling as investment values went southward. Non performing loans zoomed. Mitsubishi Bank, in its previous avatar prior to a few mergers, like other Japanese banks, resorted to various artifices to ensure that it had the appearances of a solvent bank. In 1994, the bank wrote off interest on money owed to it by two affiliated finance companies- Diamond Mortgage Company and Diamond Factors to keep the two companies as going concern. Otherwise, on its books, the bank would have to write down the value of the equity investments to zero, besides having to make heavy provisions on its loans to the two companies. Subsequently, it bailed out the two companies by buying loans from them at face value and selling them at half the book value, taking a hit on its bottom line. This preserved the displayed value of equity in its annual reports. Mitsubishi bank held only 5% of the shares of the two financing companies, with bulk of the stock held by the other members of the Mitsubishi keiretsu, in whose equity Mitsubishi Bank had a stake. At that time, Mitsubishi bank was the only Japanese bank listed on the New York Stock Exchange. In 1998, Bank of Tokyo Mitsubishi poured an additional capital of 120 billion yen into the Diamond Mortgage Company and 50 billion into the Diamond

Factors Company. Bulk of the funds were used by the companies to write-off non performing loans tied to the rapidly worsening Japanese real estate market.

By the end of 1998, the thirteen core members of the Bank of Tokyo Mitsubishi keiretsu had a debt equity ratio of almost 3:1. Besides endangering the credit quality of the loans to these companies, this put at risk the valuation of the equity holdings. To avoid increasing its loan loss reserves, the bank resorted to “ever greening of loans”- extending additional credit to enable weak companies to make interest payments whilst keeping the loans current. The bank was thus lending to the weakest credits rather than to those with the best prospects.

Investments in affiliated companies of the keiretsu were reported in “Other assets”. In the Form 20F of 2004, Bank of Tokyo Mitsubishi stated that the aggregate value of equity holdings as a percent of Tier 1 capital was 74% and that its target was to get the ratio to around 54%. At the end of calendar year 2008, the ratio was 49.1%. Though this was far superior compared to its rival Mizuho Financial Group’s ratio of 63.3%, the risk continued to be humungous, given the fragility of the Japanese economy and its stock market indices. The 20F filing with the SEC of 2008 listed out the following risk factor- “If the stock market declines in the future, we might incur losses on our securities portfolio and our capital ratios will be adversely affected”. The Tier 1 capital ratio at the end of 2008, when you ignore these issues, was 7.51%.

Consolidated Risk and Financials of Clusters and Interconnected Systems

People take it for granted that business clusters, once they come into existence, would forever sustain the benefits of such an ecosystem for all the companies located there. For example, the assumption is that Silicon Valley will be there to provide the ecosystem succor to all the companies stationed there. That precept is subject to lots of ifs and buts. With California’s financial standing taking a marked turn for the worse, lesser and lesser money would be

available to provide for the physical infrastructure and the knowledge infrastructure in terms of state funding for research and universities. What holds the ecosystem together are- great physical infrastructure, great knowledge infrastructure and the presence of venture capitalists for whom it is convenient to have the firms they finance located within a certain physical distance from where they reside. But for established companies, who already have a credit story, the presence of venture capitalists is not important. They would be the first to walk when the physical infrastructure and the knowledge infrastructure crumbles. High taxes would be an issue for such companies though it does not matter for start ups which pay no corporate taxes. So, if things do not change fast, Silicon Valley might become an incubator for start ups- not a place where flourishing technology companies want to reside and pay taxes. Will the cluster evolve into mini clusters, with parts of it migrating to Israel and Bangalore and linked together by Cisco's video conferencing technology?

Clusters crumble when the driver that caused their existence ceases to exist. The business clusters in China's Dongguan city might cease to flourish when western households start rebalancing their balance sheets. Italy's clusters for production of shoes and household products have been hit by their inability to compete with cheap Chinese labor.

A variation of cluster risk is the risk on account of an interconnected system such as the credit risk of an individual bank on account of its exposure to other banks of a banking system.

This could be on account of counterparty credit exposure, perhaps due to derivative transactions with other banks or on account of investing in the securities of other banks.

When weak entities of an interconnected system get leveraged and big, they put the whole system at risk. Lehman Brothers and Bear Sterns put at risk the whole banking system because these weak players were connected to others of the system through derivative transactions. For analyzing the credit strength of an entity belonging to such a system, one has to identify the weakest entities of the system and the extent to which the entity in

question is exposed to the weak entity- either directly or indirectly on account of exposures to third entities, which in turn have direct exposure to the weak entities. When the weak entities get big, the cancer spreads through out the system and all entities of the interconnected system have to be avoided like the plague (unless once subscribes to the too big to fail thesis). Similar interconnection occurs among insurers and reinsurers when either the insurer holds a big chunk of a reinsurer's equity or the reinsurer invests in the securities of the insurer. We discuss in detail the incestuous relationship between insurers and reinsurers through equity holdings and investments in chapter 6.

The Future of the London Financial Cluster

For some vague reason, finance is regarded as a standalone activity by individuals who believe in the notion of financial centers such New York, London, Hong Kong and Tokyo. Finance for such wise men is an end in itself and not an efficient way of transferring capital from savers/providers of capital to the users who can generate the highest possible return. Financial centers such as New York and London came into existence historically because stock exchanges were located there. Because in the pre-internet world a lot of contract notes had to be delivered physically, you needed to be close to the stock exchange. In the eighteenth century, when the New York Stock Exchange came into being, and advanced communication devices such as telephones had not come into existence, being close to the stock exchange provided competitive advantage over people located far away. Naturally, brokerage firms all gravitated to New York. But, as long as the Glass Steagall act was the law of the land, big commercial banks were located all over the place. Only commercial banks which in the pre-Glass Steagall Act era had brokerage operations were headquartered in New York. In Europe, where there was no equivalent of the Glass Steagall Act, obviously the big commercial banks also gravitated to the place where the stock exchange was located.

In the post internet world this is an anomaly, as efficient use of resources will dictate moving away from places where commercial real estate is expensive.

Services such as financial services, restaurant services, janitorial services etc are there where they can add most value to their clients. You can't have a restaurant center in the middle of the Kalahari Desert. You can't have real financial services – of the type that involves transfer of capital, located far away from the providers and users of capital. Financial services of the Las Vegas type obviously can gravitate towards financial centers. That brings to mind another reason why financial centers came into being historically. Silly regulations. For instance, Regulation Q in the US which capped the amount of interest that could be paid on borrowings was what provided impetus to London becoming an international financial center (in addition to being a domestic financial center on account of its stock exchange). Because of restrictions on gambling elsewhere, Las Vegas became a gambling center.

As silly regulations fall by the wayside and as being close to the stock exchange provides limited competitive advantage and as the stock exchange itself shifts to the cloud, financial centers will increasingly be less important. The model for financial services being close to users of capital is the venture capital fraternity in Silicon Valley. Likewise, it makes sense for a big bank to have operations in industrial clusters such as at an auto industry cluster. And you need to have an efficient mechanism for tapping the funds of savers. A slim head office can be located at a financial center, which has advanced golfing resources. In fact, it makes more sense for a country club to be located at a place where a number of financial firms have their headquarters than for a financial services firm to be located at a financial center. The argument that asset managers need to be located at a center was somehow not conveyed to a certain individual in Omaha. Great asset managers can be located anywhere and need to travel a lot to meet the providers of funds such as pension schemes, endowments, owners of rich companies etc and to meet companies which afford investment opportunities. In fact,

being located in one place, more likely than not, makes them and their investors vulnerable to becoming victims of groupthink. The 2008 credit crisis amply showed that fund managers who were not part of traditional cliques were the ones who made money- the others lost their investors a pile. Services like fund accounting will no longer be based out of the financial centers but delivered over the internet from India.

The UK's household and government sectors are deep in debt- so it is as far from savers as the east is from the west. Unlike continental European countries like Germany, which have great manufacturing firms, the UK does not have sectors which can use capital efficiently. But London has some other advantages. It will continue to be a great tourist center. It will have restaurants from across the world catering to those tourists. In fact, the future users of capital in London would be providers of restaurant and tourism services. These companies will require very little long term capital and perhaps not much working capital. This should make lenders to the London commercial real estate market, particularly office space, shudder. Finance has two branches- one branch deals with wealth creation and the other with transfer of wealth through trading of financial instruments. The branch of finance that deals with wealth creation will move to be closer to providers and users of capital. Financial firms involved in wealth transfer will be based out of those financial centers that double up as tax havens and centers for money laundering. Such firms might be involved in "high frequency trading", where having servers as close as possible to a stock exchange is a source of competitive advantage as long as this pernicious practice is not taxed away to oblivion.

Increased consolidated Risk to a Banking System through investment in TruPS CDOs

Banks are discouraged from investing in each others' capital instruments. Any investment in such securities would require a bank to deduct from its capital the amount of such investment. Trust preferred securities (TruPS) are debt like instruments issued by holding companies of

banks and which qualify as Tier I capital till Basel III takes effect (more on Tier I capital in the next chapter). These instruments are senior only to equity. The dividend payout on TruPS can be deferred at the discretion of the bank and on instruction from the banking regulator. These securities do not have a maturity date (if it had a maturity date, it would not constitute Tier I capital) but have a call option attached. The issuing bank has an unwritten compact with the investors of TruPS that it would call the securities on the first call date. If the finances of the bank are weak at the time of the call date or if the banking regulator insisted, the TruPS would not be called. By the end of 2008, US banks had issued \$149 billion of TruPS.

To get around the fact that banks could not invest in each others' TruPS, investment bankers pooled the TruPS of several banks into a CDO and issued tranching securities against them. Unlike the deduction from capital required for investing in capital instruments, investments in CDO tranches were treated as investments in rated debt securities, with the capital required for the investment linked to the credit rating of the tranche. However, such investments linked the fortunes of several banks and effectively, those banks became self-financing to the extent of the TruPS.

The weakness of the TruPS structure was that if a bank deferred its dividend payment, it acted as a signal to the market of its weak fundamentals, potentially causing a run on the bank. When the weakest entity of a TruPS investing system experienced difficulties, the value of the TruPS issued by it would fall as would the CDO tranches issued against the pooled TruPS. This would cause a writedown of asset valuation at the banks which invested in the TruPS- thus weakening their financials. So, if a bank has invested substantially in TruPS through CDO tranches, to assess its credit risk, one needs to identify the weak issuers and assess whether those entities have been big issuers. If yes, it would cause the cancer of

the risk to spread through the whole cartel (i.e. the bunch of banks which invested in each others' TruPS).

Cash leakage to weaker Companies of the same Promoter Group in Asia

In many countries, particularly those of Asia, it is insufficient to look at the consolidated financials of a company, its associates and joint ventures. One has to look at the financial condition of all companies of the same promoter group. It is also wise to know the business strategies of those companies in addition to those of the company being analyzed. Else, one is likely to be surprised when cash leakage happens from strong companies of the same promoter group to weaker companies. These leakages could happen in many ways- all to the detriment of creditors.

Firstly, a promoter might insist on heavy dividend payouts from strong companies so that he can subsidize the weak ones. And when covenants are not in place, this is a very potent route. A second possibility is that a strong company of a group borrows and then on-lends to the weaker companies of the group. Because a direct inter-corporate loan from a strong company to a weak company might be frowned upon, the company indulging in this scheme might structure the transaction differently. The strong company might deploy its surplus in a liquid mutual fund and show the investment as such on its balance sheet. The mutual fund would have been instructed to invest in the debt securities of the weak company. Since the mutual fund makes money from this scheme, it would play along. Of course, there is no contract for this arrangement- so there would be no smoking gun. But creditors to the strong company must worry about this arrangement. Ideally, a company should not be permitted to have cash resources beyond a certain level- there should be covenants for debt repayment to prevent the misuse of this cash. Idle cash, like idle minds is the playground of the devil.

Finally, particularly in countries with weak corporate governance, one might suddenly find the promoter merging his weak company with the strong entity where a creditor might have

interests. In a stroke of a pen, the strong company's debt protection metrics, post such a merger, would have weakened considerably.

PCCW Creditors would have assumed Dad would bail out the Company

Hong Kong's PCCW started off as Pacific Century Cyberworks in the mid 1990s, focused on internet related activity. The company did not really have a viable business plan till 2000. It was like a venture capital firm investing in the most hare brained ideas of the dot com era. In 2000, the company acquired the country's largest telecommunications service provider Hong Kong Telecommunications (HKT). The acquisition was funded with debt to a considerable extent. Though HKT was a sound company, the extent of the debt used did not make the deal a sensible one for the creditors. That is, unless they had looked beyond PCCW and HKT's financials.

The largest shareholder of PCCW was Richard Li, the younger son of Hong Kong's richest man Li Ka-shing. Li Ka-shing is the owner of big companies such as port operator Hutchison Whampoa Limited and infrastructure and real estate operator Cheung Kong Holdings. Cheung Kong Holdings is the holding company of Hutchison Whampoa among other companies. Paternal feelings, in Asia, extend beyond normal interaction and spreads to business interrelationships. There was no way that Li Ka-shing was going to permit his son to endure the ignominy of liquidation or something similar. On a standalone basis, taking credit exposure to PCCW was a venturesome pursuit. In fact, by mid 2001, the company did have almost a billion USD of venture capital investments. At the end of that year, the company had almost USD 4.9 billion of debt, most of which was contracted during the takeover of HKT. Richard Li's business successes till 2001 had been far from impressive. But creditors were not bothered, and rightfully so, on expectation of support from Li Kai-shing.

This was a rare occasion where cross corporate dealings actually worked to the benefit of creditors. How PCCW would have been bailed out, should the need have arisen, is not of interest to PCCW's creditors. However, creditors to Hutchison Whampoa might have been worried. One wonders if there was ever a talk of Hutchison Whampoa or Cheung Kong merging PCCW with itself. The possible structures were endless. That these possibilities could not be ruled out was amply proved by the poor corporate governance behavior of PCCW at the end of 2008. The company tried to go private by buying out minority shareholders for a pittance. Fortunately for the minority shareholders, they had success at the Hong Kong courts which did not permit Richard Li to take the company private by arm twisting minority shareholders.

India's Pharmaceutical Company Wockhardt's Dividend Policy hurt its Creditors

Founded in the 1960s, Mumbai headquartered Wockhardt was a fairly sober pharmaceutical company till 2003. Barring an acquisition in 1998, most of the company's growth came organically. Till 2003, the company's debt had a AA+ credit rating from Indian credit rating agency ICRA for local currency debt. The company's above average leverage was more than adequately compensated by its strong and sustained earnings. From 2004, the company took on a radically different path. Between 2004 and 2007, the company made a series of debt financed acquisitions in France, Germany, Ireland and the US. The company's debt was almost two times equity at the end of 2005. In 2005, probably ICRA made threatening noises about Wockhardt's burgeoning debt. The company withdrew the rating. In that easy credit period, it was possible for corporations to repay the rated debt outstanding from other facilities and get the credit rating withdrawn. The company embraced Fitch in the hope of more lenient treatment. By the end of 2007, the company's debt was getting unmanageable, but Fitch chose to rate the local currency debt of the company AA- .

As the company was getting more and more levered on account of its acquisitions, it started fooling around with currency and interest rate derivatives. But the most instructive issue for credit analysts was the plan of Wockhardt's promoter to get into the specialty hospitals business. Medical tourism to India was beginning to flourish. Patients from developed countries came to India on account of the low cost of various medical procedures compared to their home countries. They also came to get around waiting periods for medical procedures in countries such as the UK. And there was the tourism element to the business model- they could have a look at the Taj Mahal after the medical procedure was completed. The Wockhardt promoter wanted to set up specialty hospitals in a separate entity called Wockhardt Hospitals, which was to have no relation with Wockhardt. Theoretically, there should have been no reason for the Wockhardt creditors to worry about the extra-curricular pursuits of the company promoter.

Those who would have looked beyond Wockhardt would have realized that the promoter did not have cash to fund his equity stake in Wockhardt Hospital. Hence, the only way he would have been able to get his equity funding done was through dividends from Wockhardt.

Despite a more than 20% dip in net profit between 2006 and 2007, the company's dividend payout increased by more than 125%. Spotting this jump in dividends would have been the last opportunity for the Wockhardt creditor to get out (of course, the creditor had no business being in the company after 2003, but that's a different matter). Finally, everything came to a head in 2009. In early 2009, Fitch downgraded the credit rating to A. Within five months after that, the agency downgraded the credit rating to D. The market knew that Wockhardt was defaulting a few months before that.

Dividend Payouts from Multi-national Subsidiaries to Parents

Creditors to local subsidiaries of multinationals have a tough time assessing consolidated risk of the parent and its subsidiaries, particularly if the parent is a privately held company. If the

parent's financials or the financials of a big subsidiary in a third country worsen, the creditors to the subsidiary in the first country might be in for an unpleasant surprise when the subsidiary declares a big dividend to its parent, thus causing sharp worsening of credit metrics. Credit analysts in emerging markets must drastically change their mental framework and their analytical framework in the years to come. Until now, the analysts from emerging markets have always assumed that the parent would provide financial support if and when the local entity needed financial help. They have to factor in the fact, that in future, credit support might work both ways and credit quality must be assessed on a consolidated basis. Many subsidiaries are more creditworthy than their parents. If the parent's financials are unavailable, local creditors to a subsidiary should be extremely circumspect and might want to put in covenants that prevent such payouts.

The Schwing group of Germany is a big international player in the manufacture of truck mounted concrete pumps, stationary concrete pumps, truck mixer pumps and sledge pumps. The company is privately held- so the parent's financials are unavailable. The company has an Indian subsidiary, Schwing Stetter Private Limited. Late in 2009, creditors to the Indian subsidiary were in for a shock when they discovered that the company had declared a big dividend payout to its parent, wrecking the subsidiary's balance sheet. All assumptions made in the financial projections had gone for a toss.

Key Takeaways from this Chapter

It is a cardinal mistake, while analyzing the creditworthiness of an entity, to pretend that the entity operates in vacuum, untouched by what happens to entities related to it. These relationships cannot all be captured by the financial statements of the entity. Even consolidated financial statements miss out details which can be captured only by evaluating the disclosures it reveals as per the requirements of the International Accounting Standards.

Government finances cannot be analyzed on a standalone basis as leading credit rating agencies have been doing for a long time. Government income, expenses, assets and debt are closely tied to what happens to corporate and household debt. That is because an increase in household and corporate debt (usually promoted by easy money policy of a central bank that regards asset price inflation as irrelevant to the long term health of an economy) is usually accompanied by increase in asset prices, which translates into higher tax receipts for the government from capital gain tax, tax income from bonuses of investment bankers and enhanced property sector tax collection. The increased demand, when household debt goes up results in increased corporate profits and increased corporate tax collection. As unemployment falls, there is less payout from the treasury for unemployment benefits. There might even be a fiscal surplus, which causes “thoughtful” central bankers to ponder what effect there could be on financial markets when the government stops issuing risk free bonds. A maestro central banker might talk about a conundrum and a paradox or two. As asset prices go up, pension funds and other employee benefit plans of companies look artificially robust- causing households to think that focusing on savings for retirement is missing out fun in the “here and now”.

However, households cannot pile on debt indefinitely. At some point in time, interest payments themselves can be onerous. And when demand slows, the corporate sector starts layoffs. This causes leveraged households to default on their loans. The bigger the amplitude of the debt funded binge and the longer it lasted, the greater the increase in bank loan defaults, and in the extreme, can put the health of the banking system at peril. The government might be forced to bail out the banking system causing the governmental debt to go on an unsustainable trajectory almost overnight. As demand falls and as asset prices stop going up, tax collection from the household and corporate sector falls. This coupled with increase in unemployment benefits will cause sharp increase in fiscal deficits. As asset prices

fall, all pension schemes look wobbly, and unless the demographic profile of the country points to an ageing one, this government contingent liability can be brushed under the carpet for a few more years- but it does not go away.

The only correct way of assessing sovereign credit risk is to look at the societal debt ratio (SDR)- the ratio of the sum of government and private sector debt to GDP. If any of the constituents of society starts over consuming with debt, the SDR shoots up and red lights should flash in a credit analyst's mind. Debt per se need not be bad. What one needs to calculate is the increase in debt required to secure a unit rise in GDP (the marginal productivity of debt, or MPD). We then calculate V_{GAP} , the difference between the MPD and the cost of debt. If V_{GAP} turns negative, nasty things are about to happen (whose timing is uncertain), and all credit and equity investors in that country should plan on bailing out. Heavy dose of corporate debt deployed in poor yielding assets can also land a country in a soup. And when the debt is contracted in foreign currency, the soup is garnished with a currency crisis. While looking at SDR, one should not ignore the cushion provided by the propensity of household and corporations to save. These savings provide governments with flexibility for their borrowing programs without relying on the generosity of foreigners. Nor should one ignore the tenure of societal debt- whether the debt has a short term tinge to it.

Even if a country lives soberly with a low SDR, a poorly regulated banking system can plunge a country into trouble by requiring a government bailout. Poorly regulated banking systems permit bankers to roll the dice and bet on the assets of countries with high SDRs. Assets of countries with high SDRs are frothier- causing greedy bankers to chase them for yields. But when the day of retribution arrives, the asset values plunge and the banking system needs a bailout. Even institutions which do not take household deposits can cause

mischievous through their linkages with depository institutions. When bankers play with depositors' funds the pain to society is compounded.

In the corporate sector, companies, unless they are operating in sectors where no bank financing is available, should have no business lending money for promoting sales. This combination of banking and commerce under-prices credit risk. The Japanese *kieretsu* structure failed because of mixing up of commerce and banking and inadequate attention paid to credit risk and return on capital employed. Consolidated financials of companies and their financing arms miss out a lot of detail which is usually captured in corporate disclosures. Since the reign of corporate CEOs is becoming shorter and shorter, they have an incentive to push sales today and drive the problems to another day, when they would have faded into cozy retirement. The financing arms of manufacturing companies are taking on high risk through residual value guarantees, which are not reflected in corporate financials- it is a liability that can haunt a company in the future. The risks are particularly amazing in the case of long lived assets such as airplanes. Guaranteeing long term value of assets in those businesses is even more questionable. If new, fuel efficient and environmentally friendly airplanes come into existence, the residual values of the older models would fall sharply. Residual value risk has only one rightful place- the balance sheet of the user of the asset. Another risk in the vendor financing business, which is not immediately evident, is pushing sales to non credit worthy buyers. Interest rate subventions are as bad, because in the income statement, only the interest subsidy for the current financial period is reflected. The marked to market losses for providing subventions on future loan installments of a long dated loan are not reflected in the financials.

Traditionally, construction companies used to make money by executing turnkey contracts on schedule and to planned cost. Because of weakened government financials, governments are passing on the risk of creation and maintenance of infrastructure assets onto the private

sector. Contractors, on account of sharply lowered construction margins are turning to ownership of assets (usually the assets they themselves created) and toll collection from users of assets. This increases potential returns for the contractor, but leads to sharply higher debt equity ratios on the contractors' consolidated balance sheet. Usually, each project is owned through a separate special purpose vehicle (SPV). The debt sits in each SPV's balance sheet. The contractors declare nonchalantly, that the debt is non recourse to the holding company's balance sheet. If that is the line of thinking a credit analyst is going to adopt, he should write down to zero the value of the equity investment in the SPV. If the debt is not paid, the value of the equity holding is zero. So, the analyst has two choices- either consolidate all the debt and then analyze the company, else consider the non recourse debt and equity investments, at the holding company level to have a value of zero. We feel even this is not conservative enough because any non repayment of debt of a particular SPV will severely erode the reputation of the contractor- thus jeopardizing his ability to secure new BOT contracts or even plain vanilla construction contracts.

In parts of the world such as Asia, it is inadequate to just study the consolidated financials of a group where there are inter-corporate equity linkages. One needs to look at how corporate control is exercised through a promoter's ownership in a number of companies. Even though there might not be any direct equity holding of the companies in one another, the promoter can cause a baleful linkage. He might engineer an inter-corporate loan from a strong entity in his group to a weaker entity. Creditors to the strong company might not have bargained for this weakening of the corporate balance sheet. The loan might be routed through intermediaries such as mutual funds so as to mask their inter-corporate nature. Creditors need to look at the finances of all the promoter group companies and assess the likelihood of support to weak entities. Because of the circular way in which those inter-corporate loans are routed, one cannot rely on covenants to prevent such transfers.

The credit analyst must be thoroughly aware of the accounting used for corporate consolidation. The rules for consolidation depend on the extent of shareholding of one entity in another. The rules are different for small holdings (<20%), significant holdings (between 20% and 50%) and controlling holding requiring financial consolidation (>50%). The analyst also needs to be aware of how corporate acquisitions (as opposed to asset acquisitions) are handled. Issues such as good will, contingent consideration, and indemnification assets must be clearly noted. The impact of all accounting disclosures regarding consolidation of accounts must be thoroughly studied and assessed.

Chapter 4 Valuation of Assets and Liabilities

Trying to analyze a credit, without a reasonably clear fix on the value of assets and liabilities of the entity being studied, verges dangerously on lunacy. Yet, this was the frivolous pursuit Moody's, S&P and other credit researchers indulged in, for a long while, when they assigned exotically high credit ratings to certain financial institutions, despite the fact that Level 3 assets constituted in many cases more than 150% of shareholders' funds. Level 3 assets are assets which cannot be valued based on market quotes but are carried on books at values based on the whims and fancies of management hiding behind the purdah and burqa of financial models. Without a clear idea of asset valuation, one cannot assess the value of shareholder funds left in the business. Hence an analyst cannot assess the cushion available to creditors in case cash generated from operations are inadequate for debt servicing.

Likewise, once asset values are known, it is imperative to know the correct value of liabilities so that the credit analyst can assess if the business can support more debt or current levels of indebtedness are too high.

Asset values are not static and change in response to economic conditions and technological progress. The equipment required to make horse carriages must have sharply plunged in value when the automobile industry took off in the early part of the twentieth century. Such an asset is called "impaired" and its value must be written down to the value at which it can generate returns higher than the cost of capital. When such a write down happens, the greater the cushion provided by shareholders' equity, the less is the creditor impacted.

Assets do not have a unique value- they might have a value A while sitting on the balance sheet of an entity ABC while they might have a value B when parked on the balance sheet of an entity XYZ. That is because a different entity can put the asset to more productive use, rendering it more valuable to that entity. The credit analyst, analyzing a company on a going

concern basis, is more interested in the value of the asset to the entity holding it. Only in a liquidation scenario can the analyst assign a value to the asset based on its value to other entities.

Is Liquidity of Assets relevant to a Creditor?

Assets can be liquid or illiquid. To the credit analyst, liquidity of an entity is not a relevant issue. The solvency issue which gets converted into a liquidity problem is. Many companies in financial trouble like to pretend that they are having a liquidity problem but are in actual fact facing an existential solvency problem. The liquidity issue is usually bunkum, whether for manufacturing companies or for financial institutions. A sound asset generates liquid returns. A financial institution need not worry about systemic liquidity as governments and regulators invariably step in when the financial system as a whole suffers from liquidity issues. More often than not, for a single institution, doubts on the solvency of the institution linked to questions on asset quality and asset valuation is the cause of liquidity events as depositors and creditors head for the exit at the same time. A management which has a sound grip on the asset quality of its institution and is communicating this clearly to creditors will not face an idiosyncratic liquidity problem. That means not telling creditors stuff such as - the value of our assets, as valued by our proprietary model, is \$100 million with a delta of \$5 million and a gamma of something else. The sensible creditor in this case might conclude that whatever assets are left on the balance sheet would soon have a sharp “theta decay” and head for the exit, causing the liquidity event. There is no need to do “scenario planning” for 3-sigma or 6-sigma or any sigma events. To summarize,

Liquidity Problem at a company= Perceived Solvency Problem + Poor Investor
Communication

What about an institution borrowing short to fund a long dated zero coupon government bond? Or a bank which finances 30 year fixed rate mortgages with overnight borrowing? Unless the hedge fund or the bank has a serious amount of shareholders' equity, what the creditor fears, when interest rates start looking up are solvency issues. This precipitates the liquidity event as creditors compete with one another to be the first ones out and not vice-versa of a liquidity problem causing solvency issues.

Once the analyst has a reasonable fix on the value of assets of an entity, he should estimate the balance sheet and off balance liabilities. While IAS 39 (See Accounting Box: IAS 39 and Valuation of Financial Assets and Liabilities) permits the stating of liabilities at market prices on the premise that the entity can buy the liabilities in the open market if its value is below face value, a credit analyst should not analyze liabilities in that light. If the value of the liabilities is sharply lower in the market and the entity has not repurchased the liabilities, chances are the entity does not have the financial flexibility or the wherewithal to buy back the liabilities. The very fact that liabilities are trading at sharply lower prices imply skepticism in the market place of the entity's ability to refinance the obligations (i.e. the market is betting that the company will not be able to secure financing and does not have internal cash generation ability to buy back the liabilities at reduced prices). Hence, the liabilities will be repaid in full only at maturity and the credit analyst will need to value liabilities at face value. Also, a credit analyst should not be permitting in his analysis profits from fall in value of liabilities, unless the liabilities have been actually purchased at below face value.

Asset liability mismatch risk is usually talked about only for financial institutions. The risk is on account of the interest rate risk due to differing duration of assets and liabilities and on account of differing currencies of assets and liabilities. Such risks also exist for manufacturing companies. In this chapter we look at long term assets and liabilities. In the

next chapter we analyze current assets and liabilities which get converted to cash over a cycle of production (the working capital cycle). We first look at valuation of different assets in a typical balance sheet, with more emphasis on the value of assets of a bank. Then we look at valuing different liabilities of an entity from the creditor standpoint. Finally, we look at the assets and liabilities of insurance and reinsurance companies.

Valuation of Intangible Assets

IAS 38 defines an intangible asset as an identifiable non monetary asset without physical substance. This asset includes intellectual property, brand names and trademarks, patents, licenses, franchises etc. Numerous other soft competitive advantages can also be put under this head. But a number of questionable assets of a non monetary nature could also be classified under this category. The credit analyst has to understand the exact nature of the intangible asset and whether he thinks it is a source of real strength or whether it has been used for dressing up the accounts to improve the debt equity ratio. He also needs to know how vulnerable the asset is to impairment and what events can cause impairment. The likely life of the intangible asset and hence the yearly amortization, if any, that is required must also be evaluated. The importance of intangible assets was highlighted during the 2005 acquisition of shaving equipment maker Gillette by consumer goods company Proctor & Gamble (P&G) for \$53.4 billion. P&G ascribed \$29.7 billion of this purchase price to Gillette's brands (\$25.6 billion), its patents and technology (\$2.7 billion) and its customer relationships (\$1.4 billion).

Explanations provided by IAS 38 also help a credit analyst to focus his mind in evaluating whether there is anything more than hot air in the intangible asset. According to the accounting standard, an intangible asset must meet three clear conditions. Firstly, it must be identifiable, that is, it is capable of being separated from the entity and sold, transferred or licensed. It could also result from contractual or legal rights that are transferable. Secondly,

the entity must control the asset, that is, the entity must have the power to obtain future economic benefits from the asset. Thirdly, the economic benefits from the intangible asset may materialize in the form of revenues from the sale of products or cost savings from the use of the asset.

Intangible assets can be acquired from another entity. They are to be carried at acquisition costs plus direct costs associated with preparing the asset for use. Intangible assets could also be acquired in an M&A transaction. It must be remembered that any costs associated with creating an intangible asset should be recognized as an asset only once it is certain that there will be economic benefits. Until that point, all costs must be expensed. For instance, expense for research must be expensed as incurred. Only in the development phase, when there is a clear idea of economic benefits, can it be capitalized. After it is recognized as an intangible asset, the asset can be valued using two methods- the cost model wherein it is recognized at cost less accumulated amortization and impairment or by the revaluation model wherein it is carried at fair value less amortization and impairment. If there is no active market for the asset, it has to be carried using the cost model. Any increase in the value of the asset in the revaluation model has to be directly recognized in equity. Losses in the value of the asset, however, have to be run through the income statement. Intangible assets might have a finite or infinite life. The impairment test is what determines, on a continuous basis, any loss in the value of the asset.

The Intangible Assets of Switzerland's Pharmaceutical Giants

Switzerland is the country with the highest proportion of intangible assets on account of its two pharmaceutical giants, Roche and Novartis. At the end of 2008, Novartis had intangible assets of \$9.5 billion in addition to goodwill of \$11.2 billion (also linked to patents from acquisitions), out of the total assets of \$78 billion. In 2007, the company took an impairment charge of \$320 million (out of a total impairment charge of \$482 million) following generic

competition for its antiviral medication Famvir. Israel's generic giant, Teva (we had talked about the company and its prospects in Chapter 2), successfully challenged the patent in the US courts before the patent was to expire in 2010. With aggressive firms like Teva on the prowl, intangible assets of pharma companies are not as solid as they used to be- so creditors beware. Ideally, intangible assets should be contributed by a number of drugs with no single drug contributing to more than 5% of total intangible assets. That would ensure that if a patent falls by the wayside, there is adequate cushion left. Roche's top 20 drugs accounted for 88% of its sales in 2008. A bit worrisome was the fact that two drugs contributed 16% of sales each and yet another drug contributed 14% to sales. Its famous swine flu drug Tamiflu accounted for 5% of its sales. With lots of questions being raised about Tamiflu, credit analysts must factor in a scenario in which Roche not just writes down intangible assets linked to Tamiflu, but is required to pay fines in some countries.

Krispy Kreme's "Reacquired Franchisee Rights": the need to understand the Intangible Asset

Krispy Kreme, founded as a single donut shop in the United States in 1937, expanded rapidly in the next few decades. The company's most famous competitor was Dunkin' Donuts, a company which got a major chunk of its revenue from sale of coffee rather than donuts. After several changes of ownership (including being involved in a leveraged buyout), Krispy Kreme had its public listing in 2000. Being a publicly listed company, there was continuous pressure to report higher earnings every quarter.

One of the company's important sources of revenues was franchisee royalties and fees. On opening a new store, a franchisee of Krispy Kreme would pay an initial franchisee fee. The franchisee would then pay annually a certain percent of sales as royalty fees and a percent of sales to the corporate advertising fund. Retail food chains occasionally repurchase franchisees from unhappy or underperforming franchisees. However, if the business as a whole was successful, these repurchases would be few.

Successful franchisors get most of their revenue from franchisees in the form of royalty fees. This fully aligns the interests of the franchisors and franchisees- both of whom want to maximize revenues at the store level. Krispy Kreme however relied on profits from sale of equipment and ingredients to franchisees. This incentivizes the franchisor to open as many stores as possible, because, in the short run, it results in increased sale of equipment and ingredients. Obviously, when too many stores are opened at short distances from one another, the franchisees start competing among themselves for sales. When sales and profits suffer, franchisees obviously want to get out and hence the increased repurchase of franchisees.

More than the fact of unhappy franchisees, what was most interesting was the accounting for such franchisee repurchases. The company booked most of the purchase price of the franchisee as an intangible asset called “reacquired franchisee rights”. The industry practice was to amortize this head but Krispy Kreme did not do so. In addition, the company made matters worse by agreeing to pay the franchisees a high price so that the struggling franchisees could make interest payments on their past due loans. When the interest payment came in, it was recorded at income, in effect converting its own overpayment for the repurchase into reported profit. All expenses connected with the repurchase of a franchisee, whether cost of closing stores or any other expense were recorded with “reacquired franchisee rights”, rather than as costs in the income statement. Added to this, the company was involved in a number of related party transactions, when board members and other insiders, who owned franchises, sold them back to the company at exorbitant prices.

The head “reacquired franchisee rights” made its appearance in the fiscal year 2002. That year, this head had a carrying value of \$16.6 million in a balance sheet of \$255 million. Next year, the head jumped to \$49.3 million on a balance sheet of \$410 million. That was when creditors should have jumped and asked what was happening. Of course, creditors who

understood the credit story of the entity would have asked questions the previous year itself. Next year, “reacquired franchisee rights” were carried at \$176 million in a balance sheet of \$660 million. Then people started asking the questions they should have asked a couple of years before. The SEC began an enquiry and the CEO and several top executives were out. Another smoking gun was that between 2000 and 2004, the company had four CFOs. That should have caused eyebrows to be raised but apparently it did not.

British Airways’ trading in Heathrow Landing Rights have no impact on its Credit Quality

An intangible asset that can lose value at short notice is the so called landing rights possessed by airlines. The right to operate flight services to busy airports such as London’s Heathrow airport can be a valuable one. These rights can sometimes be traded or sold subject to acquiring the requisite permissions. When airlines have encountered financial problems, they have sold the rights to other airlines. For instance, bang at the height of the credit crisis in November 2008, the US’ low cost carrier Southwest Airlines scooped the landing rights at New York’s LaGuardia airport from bankrupt ATA Airlines. In fact, the bankruptcy court, at the middle of a crisis is the best place and time to ensure not overpaying for such an asset. Southwest paid \$ 7.5 million for rights that permitted it 14 landing and take-off slots at the airport.

Obviously, landing rights in an airport situated on an unprofitable route have low value. The value of the asset is linked to the potential excess earning on account of possessing the right. The value of this asset is very fragile and must be tested continuously, like all intangible assets, for impairment. Any change in government policy such as permitting a new airport to come up nearby the existing airport can drastically impact the value of the rights. Governments also have the power to bilaterally negotiate with foreign governments for securing landing rights for their home country airlines. Of course, this must be accompanied

by reciprocity- the airlines of the foreign country must be given landing rights in the home country.

In its annual report of 2008-09, British Airways ascribed a value of £205 million to landing rights it possessed. The airlines carried total intangible assets of £267 million. The company capitalizes landing rights acquired from other airlines at cost or fair value less impairment losses. Landing rights outside the EU are amortized on a straight line basis over a period not exceeding 20 years. In the case of landing rights within the EU, the rights are considered to have an indefinite life because, as per EU norms of October 2008, the landing rights are freely tradable. British Airways does have a track record of trading landing rights. In 2003, the airline purchased access to 8 slots at Heathrow owned by Swiss Airlines (the successor to bankrupt Swissair) by giving a loan of £22 million to the Swiss company. In the same year it acquired 4 Heathrow slots from the US' United Airlines for \$ 20 million. The American airlines sold the slots to help it tide over its deep financial problems. In 2004, British Airways sold 4 Heathrow slots to Australian airlines Qantas for \$30 million.

Dabbling in trading of landing rights as well as the carrying value of landing rights do not have a material impact on British Airways' credit quality. The £200 million carried value is a small bit in a balance sheet with a size more than £10 billion. However, in the case of small airlines having planes on operating lease, these landing rights can be an important component of the balance sheet and the fountain of their credit story.

Valuation of Lease Assets

Leases are of two types- finance leases and operating leases. A finance lease transfers all the risks and rewards of owning an asset to the lessee. All other leases are operating leases. IAS 17 requires lessees in a finance lease to recognize in their balance sheet, the lower of fair value and present value of the minimum lease payments discounted at the interest rate

implicit to the lease. All initial direct costs of the lessee are added to the above amount.

Typically, in a finance lease, ownership is passed on to the lessee at the end of the lease term or the lessee has the option to buy the assets at below fair value. Also, the lease term usually spans the useful life of the asset. The risks associated with the asset are taken by the lessee- if he decides to cancel the lease midway, associated losses to the lessor must be borne by the lessee. So, from the point of credit and equity analysis, there is no difference in the analytical framework from that for asset ownership. The only issue is how the residual value is handled in the lease agreement. When manufacturers of assets enter into a lease transaction with a customer, instead of selling the asset outright, the manufacturer usually takes the residual value risk.

Operating leases bring in financial flexibility to the lessee's balance sheet. There is a close correlation between lease rentals and yields on the assets. If the yield on assets goes up, the lease rental is expected to go up too. So, creditors need not be worried about lease rentals going up post the term of a lease. Whether the company being analyzed has entered into a finance lease or an operating lease, its position is definitely never worse than if it had owned the asset. There are times when there might be a temporary shortage of assets- such as drilling rigs at the top of the crude oil bubble in 2008. This could have resulted in companies that leased those assets having to forego opportunities. But that's a risk creditors can live with, because assets bought at the height of a bubble never make sense for creditors or shareholders.

Where creditors need to pay close attention is how "sale and lease back" transactions are handled. Usually, "sale and lease back" would be resorted to by a company under financial stress which needs to raise short term funds. It is unlikely that the sale would have been carried out at a price in excess of the carrying amount. If a company managed to secure a profit in such a transaction, and the lease entered to, post the sale, is a finance lease, the

company cannot book all the profits upfront but is required to amortize the gains over the life of the lease. If the lease entered to post a “sale and lease back” is an operating lease, any profit from the transaction can be recorded upfront.

Analysts should sharply writedown Airplane Lease Portfolios

Over the last decade, the value of airplane portfolios of airplane leasing companies rested more on hope than stark facts. Even before the end of the dotcom boom, airlines' financials across the world had been terrible. Airlines filing for bankruptcy, particularly in the US, did not remove excess capacity from the system. On the contrary, things got worse as the airlines, in the bankruptcy court, drastically renegotiated their airplane lease rentals, sometimes by as much as 50%. At least, in the post dot com phase, there was a whiff of hope based on demand for new planes from countries such as India where a number of newly minted airlines were looking to expand their capacities. In the financial year ending March 2009, Indian airlines collectively had losses of \$2 billion, almost a quarter of global airline losses. All the airlines were looking to lease out their planes, in direct competition to airplane lessors.

Among the abundant dose of yucky stuff on General Electric's balance sheet at the end of 2008 was a \$33 billion portfolio of more than 1400 airplanes which the company leased out to airlines. The biggest player in the game was International Lease Finance Corporation, a subsidiary of bailed out insurance company AIG. International Lease Finance was founded in 1973 but the owners sensibly sold it to AIG in 1990 for \$1.3 billion. Among the many things carried at questionable value in Australia's “infrastructure bank” Macquarie's balance sheet at the end of 2008 was a \$3.5 billion airplane portfolio. Babcock and Brown, another Australian bank and a big player in the structured finance game which drove the bank to bankruptcy, did its stakeholders no favor by holding on to a \$7 billion airplane portfolio.

Historically airplanes whose useful life had ended were moved to the Mojave Desert in California. Increasingly this place is witnessing newer and newer airplanes being parked there on account of no demand from airlines. And an airline whose shareholder equity has effectively been wiped out can threaten to shred the lease agreements for airplanes in a bankruptcy court. The lessors forgot one fundamental principle- you can do all the financial structuring in the world you like but if the end customer of a business is not strong financially, the cancer would spread across the whole structure. And in valuing a lease portfolio, that is precisely what a credit analyst should be doing.

The most interesting aspect of the airplane lease business was the securitization of the lease receivables from airlines through issue of enhanced equipment trust certificates (EETCs). The credit risk of these certificates can be tranced through issue of several classes of EETCs, with the holders of the senior tranche (“tranche A”), getting paid before the holders of the junior B, C and D tranches. In a bankruptcy court, the holders of the “tranche A” do not mind working out lower lease rentals as they are not impacted- it is the holders of the B, C and D tranches that get wiped out. Holders of unsecuritized lease agreements will definitely have to write down the value of the leases they carry on their books. Credit analysts would not be too conservative if they record an impairment charge of 50% on newer planes in lease portfolios and 60% to 70% on older planes.

There are just too many airplanes in this world. Just as some airlines built their business model around being “low cost airlines”, it is also possible to build a new airline with airplanes bought at distressed values. Because these airlines operate on a different cost base, chances are they would drive a number of semi bankrupt airlines over the top.

The Real Estate Business might cause trouble for Japan's Orix Corporation

Orix was established in 1964 in Japan. It started off as a leasing company that branched into a number of activities. The company flourished in the 1960s and 1970s as Japan's economic miracle was underway. It is one of the finance companies whose assets can be valued within a not-too wide band- Level 3 assets were only 5% of total assets in the year ending March 31st 2009.

Till 2005, the asset quality of the company's lease portfolio was very good. A big chunk of the lease portfolio consisted of cars leased cars to various companies. From 2005, the company made a major push towards the real estate sector. Between 2005 and 2009, the operating lease portfolio connected with real estate grew by about 140%. The auto portfolio went up by 60%. Of its operating lease portfolio of \$12.5 billion, the real estate related portfolio was around \$7.5 billion, while the auto linked portfolio was around \$4 billion. The real estate push extended beyond leasing to vanilla lending to real estate projects. Real estate related lending portfolio at the end of March 2009 was \$6.5 billion, more than twice the level of 2005. Despite this horrid real estate exposure, Orix will survive for several reasons. The most important reason is that the company is conservatively leveraged- so it can write down assets without putting solvency at risk. Secondly, it does have a lot of businesses which generate solid revenue and which can help in the write down of the real estate assets.

Manufacturing Company's Assets

The biggest item on the asset side of a manufacturing company's balance sheet is usually under the head "property, plant and equipment". The manufacturer uses these assets to produce goods. The credit analyst needs to be aware, within a broad range, of the value of the assets so as to estimate the gearing of equity, and the potential recovery in case the company plunges into liquidation. Manufacturing asset value is a function of location. The

same set of assets located in a low labor cost region might produce higher returns than when located in a high cost region. Asset values can suddenly plunge if a radically improved equipment comes into the market which dramatically improves productivity. Such equipment would cause a write down in value of existing assets.

IAS 16 requires property, plant and equipment assets to be carried using either the cost model or the revaluation model. Once a particular model is chosen, a company has to apply that policy to an entire class of property, plant and equipment. When the cost method is used, the company carries the asset at cost less accumulated depreciation and accumulated impairment losses. The revaluation model is used for an item of property, plant and equipment whose fair value can be measured reliably. Revaluations are required to be made regularly to ensure that the carried value does not depart much from fair value. For a manufacturing group it is better to carry the assets at cost less depreciation and impairment. In case, over a cycle of household debt, the earnings of an asset are lower than the cost of capital, an impairment charge needs to be taken to ensure that the asset valuation produces income related to the cost of capital. Fair value of manufacturing assets might induce volatility in their carried value which might not reflect the income producing ability of those assets.

Depreciation of the manufacturing assets must be correctly deducted from revenues. Only then the return on capital employed can be correctly estimated. Also, only then can an analyst estimate the amount of capital expenditure required to sustain the business at current levels. Neglected/delayed capital and maintenance expenditures can disrupt operations and put into question debt servicing ability. The economic reality should reflect whether the written down value method of depreciation should be used or the straight line method. Since, for most assets, the value of a manufacturing asset falls sharply post acquisition and then falls at a moderate pace, it makes sense for most companies to use the written down value method.

Also, since the new equipment is likely to require lower energy costs for operating, it makes sense to take higher depreciation charge initially and levelize life cycle operating expenses.

An important item regarding plant and machinery, not revealed in the financials, is the country of origin of the equipment. Some countries have a reputation of producing low cost equipment of questionable quality. This can lead to costly plant disruptions sometime in the future. So, analysts should keep track of any “penny wise pound foolish” strategy resorted to by the management of a company. Another issue is asset revaluation when assets are revalued upwards. Accounting standards require this upward adjustment to be done directly in the balance sheet so that it does not disrupt the income statement. Analysts have to worry if this upward revision is based on a single year jump in the earnings from the asset, which might not be sustainable. Also, valuing different parts of the property, plant and equipment sections independently can lead to misleading conclusions. So does part revaluation can lead to wrong conclusions. To realize the increased value of land, the plant and machinery might have to be removed and sold- possibly at a lower value than carried in the books and costly layoffs resorted too.

The Kodak Moment was cast aside by Technology change- Impairment Charges followed

Write down in value of plant and equipment usually happens when there is a change in the credit story of an industry on account of introduction of new technology. This new technology changes the manufacturing process and the manufacturing equipment required, causing a write down of the old assets. Another reason could be labor arbitrage- it might make more sense to produce the good elsewhere on account of lower labor costs. It might make sense to put up a new plant at this location rather than ship the old plant brick by brick. When manufacturing assets are written down, it is accompanied by employee severance costs, inventory write downs and other exit costs.

Founded in 1880, Eastman Kodak successfully exploited the then new technology of the portable camera. Since then, the company was always at the forefront in the imaging space until Polaroid introduced the instant camera in 1976. That was the first hint that the company was no longer a master of all it surveyed. In 1991, the company settled a patent infringement suit with Polaroid by paying \$925 million. But it was towards the end of the twentieth century, when the company revealed itself ill prepared for the onset of digital imaging that the company's credit story came to an end. Once that happened, all that followed were endless restructuring, plant closures, writing down equipment carried value and employee severance costs. The company had two major restructuring programs in the decade between 1996 and 2007. But the plot had been lost earlier. Sensible creditors should have gotten out by the mid to late 1990s. Management was not able to come up with a strategy to recover lost ground.

In 1996, the company recorded a restructuring charge of \$358 million and a \$387 million charge on the disposal of its office imaging sales and services business. In 1997, the company took a pre-tax charge of \$1.45 billion for restructuring and \$186 million for write-off of R&D expenses from an acquisition. The charges included costs for inventory write down, severance payments to 16,000 employees, cost of demolition and shutdown of facilities and getting out of lease obligations by paying a penalty. In the next restructuring program, between 2004 and 2007, the company recorded charges of \$3.4 billion, again composed of accelerated depreciation of assets, severance packages related to the elimination of 27,650 jobs, impairment charges on value of plants etc. The company even recorded an impairment charge of \$238 million related to the sale of a facility in China. At the end of 1997, the company had only \$3.2 billion of equity to support \$ 13.1 billion of assets. By the middle of 2009, vultures were flying over the company. A private equity shop bought its senior notes at a distressed interest rate of 10.5%. Because the credit story ended more than a

decade back, the private equity shop also received warrants to convert to 53 million shares of Kodak.

US Airlines underprovided for Depreciation and overstated Residual Value in the late 1990s

In the late 1990s the US airline industry was reeling under losses. As in the case of the automobile industry, union contracts and generous pension provisions had made the older generation airlines unviable. When they could not put a lid on operational expenses, they resorted to financial engineering to boost their earnings. The artifice used was increasing the useful life of their airplane fleet and increasing the residual value of the airplanes. Both the measures reduced the annual depreciation expense of the airlines and increased their reported profits. The shenanigans were exposed when some airlines sold aircraft below their carrying value and recorded losses. An analyst who was not alert to this accounting change might have assumed that the credit story of the airline industry had turned for the better. Because airplanes are movable assets, and there is a liquid airplane lease rental market, perhaps it makes sense to carry airplanes at fair value based on airplane type and vintage. Or, to dampen volatility, the residual value could be obtained from the market. The critical point for the credit analyst is if he cannot correctly estimate depreciation costs of an asset, he would not be able to calculate return on capital employed accurately over a business cycle. And if he can't do that, he cannot estimate if there is an investment story at all.

A similar phenomenon occurred in India in 2008. There was chronic overcapacity in the sector. A brutal fare war had broken out among the airlines. Jet Airways, incorporated in the early 1990s after India liberalized the aviation sector and threw it open to market forces, was a very successful player in the industry till a number of new players entered the sector in first decade of the twenty first century. What was once a very profitable airline plunged into losses. In the quarter ended June 2008, Jet Airways quietly changed its airplane depreciation method from written down value method to the straight line method for its narrow bodied

aircraft. This helped the airline report a profit for that quarter. But the boost from this accounting trick was short lived as the airline sank into deeper losses during the following year.

In an industry where hundreds of unwanted airplanes are parked in a desert, the correct residual value of airplanes post their useful life, is precisely zero. Airlines would find this out the hard way.

Valuing Impairment of Assets

Accounting standards require companies to assess at the end of every reporting period whether they are carrying assets on their books at values above what is meaningful in terms of return on capital employed. IAS 36, “Impairment of Assets”, specifies that assets should not be carried at more than their recovery value. The standard states that an asset is carried at more than recoverable amount if the carrying amount exceeds the amount that can be recovered through use or sale of the asset. An asset is defined to be impaired if the carrying amount exceeds the recoverable amount. Impairment of assets such as inventories, employee benefits, property, plant and equipment are governed by the respective accounting standards that deal with those assets. The main focus of IAS 36 is on investments in other companies- whether subsidiaries, associates or joint ventures. The chief reason for the occurrence of impairment here is due to the company having overpaid for those investments. Typically, investment assets bought in the middle of a boom are what result in impaired assets once the good times end. The other reason for such impairment is drastic technology changes in the area where the investments were made, dramatically reducing the likely receipt of cash flows from those assets.

The recoverable amount is defined by IAS 36 to be the greater of the fair value of the assets minus the costs to sell the asset and the value from the use of the asset. The value from the

use of the asset is the present value of the expected cash flows from the asset. In the case of damaged equipment that can still function, it is recommended to reduce the useful life of the asset through accelerated depreciation rather than take an impairment charge.

Impairment Charge by Europe's Telecom Players on account of overpaying for 3G License Fees

The fear of being left out when action is on during a bubble induces corporations to do foolish things. In the midst of a bubble, shareholders might enquire of management why their firm is lying low when supernormal returns are to be had. Unable to withstand the pressure from shareholders and other stakeholders, management overbids for assets. The asset could be a company. The most egregious example of this was AOL Time Warner taking a \$ 54 billion impairment charge on account of Time Warner overpaying for AOL in 2000 at the height of the dot com boom. Since this acquisition involved share issuance and not usage of cash, creditors were not affected, but there was a massive transfer of value from the shareholders of Time Warner to the shareholders of AOL. Likewise, Qwest Communication took a \$ 41 billion charge in 2002 on account of overpaying for US West and other companies.

The fear of being left out caused Europe's telecom operators to overbid for 3G licenses. Each country was auctioning only a certain number of licenses. This gave rise to the thought that those who lost the bid would be wiped out from the telecom map. Somehow, the thought never occurred that overpaying for the licenses would put tremendous pressure on the financials of the competitors, greatly reducing their operational and financial flexibility. In fact, if those companies headed for bankruptcy, their assets could have been acquired cheaply once the bubble was over. But the pressure from the markets was just too much. One by one, the big telecom operators fell to the temptation of overbidding for the license fees. The worst aspect of this sorry episode was that this fee was paid out by taking on oodles of debt. The fruits of their sins were evident quite soon. In 2002, Deutsche Telekom posted a loss of €24.6

billion while France Telecom had a loss of €20.7 billion. This was chiefly because of the impairment charges taken by the telecom companies on the value of their license asset. In 2005 and 2006, UK telecom operator Vodafone took a charge of £10 billion and £ 28 billion to writedown the value of its business in Italy and Germany respectively which it had obtained through acquisitions. Vodafone, at the height of the dot com boom bought German telecom operator Mannesmann for £101 billion. The company paid £13 billion for 3G licenses in 2001 and 2002. Dutch telecom group KPN quit its 3G venture with Hong Kong's Hutchison group. It took an impairment charge of €9 billion. Finland's Sonera and Spain's Telefonica took multibillion Euro impairment charges too.

As an aside, in 2009, Virgin Mobile bid €240 million for the fourth French 3G license. The existing 3G operators such as Orange paid €619 million in 2001 and 2002 for the same license. The fundamental lesson that shareholders and creditors have to imbue is if they wait for some time, assets will be available at prices which yield at least the required return on capital employed, if not at lower prices. Hurrying to acquire assets at any price merely causes impairment charges. And for the creditors, who get absolutely nothing from bidding for such assets, the way to keep things under control is to refuse to finance such ventures. Else, the company can get into trouble and default on its debt. In fact, covenants should be provided in loan agreements that prevent expenditures beyond certain level without creditor approval. The temptation to overpay for assets can afflict even the most disciplined of investors. At the height of the crude oil bubble in 2008, Warren Buffett overpaid for a stake in oil exploration firm Conocco Phillips, the error of which the great man promptly acknowledged in his 2008 letter to shareholders of Berkshire Hathaway.

Assessing the value of a Bank's Assets

Rating agencies look askance at a bank's creditworthiness once its asset quality weakens. However, the point of bank credit analysis is to predict the likelihood of asset quality

deterioration – not wait for the deterioration to occur and then pronounce judgment. In short, rating agencies should have been downgrading the US and European banks from 2005, when impending trouble could have been easily spotted by a) rise in loans to retail customers with zero or negative equity b) debt financing of buyouts at crazy leverage levels c) insane increase in the size of the trading book d) increase in level of illiquid investments- the only illiquid asset on a bank's books should be its loans e) sharp increase in the holding of assets whose values were based on "model" output and f) sharp increase in societal debt ratio (SDR). The rating agencies however failed to discern the sign of the times. Downgrading banks in 2007 and 2008 could have been done even by a stunningly mediocre orangutan.

The asset side of a bank's balance sheet comprises of three parts- the loan book, the investment book and the trading book. If the trading book is larger than 10% of the total asset book, a creditor has no reason to be around that institution in any form or shape. For instance, if you looked at the annual report of Deutsche Bank for 2007, you would find that the trading book overwhelms the loan book. One wonders why German regulators consider it prudent to allow the bank to gamble with depositors' money (and tax payers' money if the whole structure collapses and needs a bailout). For calculating the size of the trading book one should not consider the absolute amount of trading assets but subtract the category "Financial liabilities at fair value through profit and loss" from the category "Financial assets at fair value through profit and loss". That is because international accounting standards require you to show the assets and liabilities of a derivative transaction separately, and not on a net basis at marked to market value. The accounting treatment makes a lot of sense because the liabilities and assets might have differential credit risk. But for calculating the size of the trading book, calculating on a net basis suffices. Banks claim that the large size of the trading book does not reflect proprietary trading but includes trading on client account. Even if that is true (which is not the case with many institutions), the phenomenal amount of credit risk if

the client is speculating or improperly hedging, does not make the pursuit worthwhile for anyone except the employees involved.

A sizeable proportion of a bank's assets should be loans that it originates under very tightly managed underwriting principles. The lower the percentage of bank loans as a percentage of total assets, the higher the credit risk of the bank. A much smaller percentage of a bank's assets could be investments. Investments in debt securities of a corporation or asset backed pools of retail loans originated by other entities should not be a high percentage of the investment book, as unlike the loans the bank originates, it does not have a close and ongoing relationship with the borrower to assess the borrower's creditworthiness. For a discussion on bank risk capital estimation, see the Text Box: Basel II and Bank Asset & Liability.

Loan Book Valuation

IAS 39 requires banks to carry loans on their books at values calculated from discounting the loan cash flows at the effective interest rate of the loan (for definition of the effective interest rate see Accounting Box: IAS 39 and the Valuation of Financial Assets and Liabilities).

Now, this presents a true and fair view of the loan values as they currently stand but not very informative to a financial analyst. General provisions are created for potential bad loans, the moment a bank makes a loan, based on the knowledge that a certain percentage of loans that are now performing might cease to perform in the future. Specific provisions are made once a specific loan turns bad. Since general provisions are created based on past loss experience (or regulatory specification), it might be inadequate if there has been a change in the loan approval standards or if a bank has made modifications to the loan products offered to customers. Loss experience can also go up due to external factors such as sharp increase in SDR.

In early 2007 both Wells Fargo and Washington Mutual (WaMu) were carrying home loans at face value on their respective balance sheets- however the former was originating home loans to creditworthy borrowers, with the borrowers making down payments, while WaMu was originating loans with no down payment. Two issues spring to mind when comparing the mortgage loan book of WaMu and Wells Fargo. Firstly, the probability of default (PD) of Wells Fargo's home loans was lower than that of WaMu's because the former clearly looked at the income and credit profile of the borrower. Also, the very fact that the Wells Fargo borrower could afford to make a down payment while WaMu's could not, implied lower expected delinquencies on Wells Fargo's home loan book. Secondly, if a default did occur, because the Wells Fargo borrower had equity in the house, the recovery on the defaulted loan would be much higher than WaMu's. Hence the loss to Wells Fargo from a defaulted loan, referred to as loss given default (LGD) would also be lower. So, the expected loss from the loan portfolio, given by the product of the PD and LGD, would also be lower. That would not be evident if one looked at the home loan portfolio of the two lenders in their respective balance sheets. Only much later, when the loans start getting seasoned and the defaults start to occur would it be known whether the carrying amounts in the balance sheet was correct. Obviously, if the loans were priced so as to incorporate the expected defaults there would be no problem. But what if a lender was mispricing loans (on the lower side) or he had no idea of expected defaults as he had entered a new line of business or was beginning to run his current business under more lax loan underwriting standards?

This is where the other elements of credit analysis – following the credit story (change in the industry practices such as the entry of negative amortization home loans etc) and management interaction (to understand loan growth strategy, entering new business lines etc) come in. If you see a bank entering a new line of business and the management plans to expand the business very slowly so that it can price loans correctly and tweak the loan

conditions after analyzing the delinquency experience, the credit analyst need not be too bothered. On the other hand, if you were a lender to mortgage financier Countrywide, when the management got into sub-prime lending and decided to expand at breakneck pace, you should have known that you needed to get out really fast.

This is one of the places where rating agencies fared really poorly. They merely looked at the quanta of assets on the loan book and calculated an assorted collection of ratios while not gleaning the credit story. And the credit story of US and European bank balance sheets was changing rapidly in the early part of the 21st century. For instance, both loans to an industrial company and a leveraged loan for buyout of an industrial company might be disclosed as loans to the industrial sector. However, while the former loan might be used to expand a company's business and thus generate returns to pay off the loan taken, the latter would merely lever the balance sheet of the company bought out. In addition, it would give the acquired company the benefit of the wisdom of the private equity managers, managers whose resumes would be light on actual engineering experience while heavy on financial engineering "expertise". You don't need a spreadsheet or stochastic calculus to glean that loan write downs were around the corner.

In short, a balance sheet reveals the amount of non performing loans after they have turned non- performing as well as the general provisions for loans expected to turn non- performing based on past experience. However, general provisions are counted as part of Tier II capital (see Text Box: Debt Capital Instruments of Banks). The role of the credit analyst is to anticipate what quanta of loans will turn non-performing before they do so and not rely, beyond a point, on past experience. Rating agencies fail here because they rely entirely on past experience (though they profess not to do so). In new lines of businesses, where the rating analysts neither have sufficient data nor sufficient intellectual wherewithal, they give the benefit of doubt entirely to the bank management.

Did Standard Chartered Bank harvest its Loan Loss Provisions to report higher Earnings in 2009?

Standard Chartered Bank came into existence in 1869 through the merger between two banks. The bank operates in 70 countries. In 2008, 70% of the group's income and 80% of operating profits came from Asia. The holding company is regulated by the UK's Financial Services Authority.

Provisioning ratio for bad loans is defined as the ratio of the sum of gross provisions at the portfolio level (referred to as general provisions earlier) and specific provision for individual bad loan to the total amount of bad loans. Obviously, the higher the provisioning, the more conservative is the asset valuation displayed on the balance sheet. But more importantly, irrespective of where you are in the business cycle, this ratio should not fluctuate much. Any sharp decrease in the loan loss coverage ratio is an indication of possible harvesting of provisions for reporting higher earnings through under provisioning. It can be argued that at the bottom of the cycle you can have a lower coverage ratio than at the top because at the bottom of the cycle recoveries from the bad loan will improve as the economy recovers. That is acceptable to some extent if the hypothesis of the economy about to improve holds water.

Standard Chartered bank had a loan loss coverage ratio of 78% for the period ending June 2008 on its consumer banking portfolio. This fell to 72% a year later. The consumer banking loans were predominantly mortgage and SME loans. Reduction in coverage was not called for. Home prices in the countries that the bank lends to looked vulnerable and relied for support on government stimulus programs of those countries. But it is in the area of wholesale banking that there was a sharp reduction in coverage, which is quite inexplicable. The loan loss coverage ratio fell from 84% for the period ending June 2008 to 59% a year later, a full 25 percentage points lower. The impact of this was not insubstantial. Standard Chartered is disproportionately exposed to countries that rely on exports. If the loans are to exporters who export goods to countries with high household debt, the reduction in coverage

ratio during 2009 was questionable. If provisioning had been done in the first half of 2009 at the same rate as done in 2008, it would have required additional provisioning of \$628 million in the wholesale banking side and \$93 million in the consumer banking group, giving it a total requirement for additional provisioning of \$721 million. To get an idea of the scale of this number, the bank's net reported comprehensive income for the first half of 2009 was around \$1.6 billion. Of course, the management could have a perfectly innocent explanation for the lower loan loss coverage, but any creditor analyzing Standard Chartered for potential investment should have known the answer before he took the plunge.

Accounting Box: IAS 39 and Valuation of Financial Assets and Liabilities

(Please note this standard has been replaced by IFRS 9 since the completion of this book. However, the broad contours of what has been mentioned below remains current)

Understanding IAS 39 titled "Financial Instruments: Recognition and Measurement" is the key to understanding reported values of financial instruments, chiefly derivative instruments and the limitations inherent in such valuations. Financial assets and liabilities are of the following four types: 1) assets/ liabilities held for trading 2) held to maturity investments 3) loans and receivables and 4) available for sale financial assets. IAS 39 explains how financial assets can be categorized into these four categories.

Assets and liabilities held for trading must be carried at fair value, with profits and losses run through the income statement. Held to maturity investments are non derivative instruments that along with loans and receivables are required to be valued at amortized cost using the effective interest method. The effective interest rate is the rate at which if all the future cash flows from a loan are discounted and added post discounting, the resultant value is equal to the loan amount net of any upfront fees. The effective interest rate ensures amortization of upfront fees over the life of an asset/liability. Any impairment in the value of these assets has to be recognized through the income statement and the carrying values reduced by that

extent. Impairment in the value of “available for sale” financial assets has to be recognized in other comprehensive income and the cumulative loss has to be deducted from equity.

Hand in hand with IAS 39 goes IAS 32, titled “Financial Instruments: Disclosure and Presentation” which tells the story that can’t be put into the numbers that IAS 39 requires. For each class of financial asset, IAS 32 requires the disclosure of significant terms and conditions, impairment recognition conditions, accounting policies adopted, repricing dates of assets exposed to interest rate risk and credit risk exposures categorized by risk categories. It also requires disclosure of details such as offsetting financial asset and liability, netting arrangements with counterparties etc.

When a derivative instrument is used to hedge the change in value of a financial instrument, the accounting for the gain/loss in the value of the financial instrument and the hedging instrument are handled together. This is referred to as hedge accounting. A fair value hedge is a hedge that covers the risk in the movement in the fair value of an asset/liability. A cash flow hedge is used to hedge the risk of variability of cash flows from an asset/liability or the cash flow of a highly probable forecasted transaction. A hedge is said to be highly effective if it substantially covers the risk of variability of fair value of an asset/liability. The gain/loss of the hedging instrument and the hedged asset are both recognized in the income statement. In the case of cash flow hedges, the portion of the gain/loss on the hedging instrument that is determined to be an effective hedge is recognized in other comprehensive income. The ineffective portion is directly recognized in the income statement immediately. Currency hedges of a net investment in a foreign operation are accounted for in a similar way to a cash flow hedge.

When a derivative instrument is a component of a non-derivative host contract, thus impacting the likely cash flows of the host contract vis-à-vis had the derivative component not existed, it is referred to as an embedded derivative contract. IAS 39 requires the

embedded derivative to be separated from the host contract and accounted for separately if the economic characteristics and risks of the derivative contract are not closely related to those of the host contract. If the embedded derivative is separated from the host contract, it has to be accounted for at fair value just like any financial instrument. For example, in the case of a mortgage backed security, the prepayment option is closely tied to the underlying home loan (the host contract) and hence cannot be separated from the host contract for valuation purposes.

Corporate Unsecured Loans

It is difficult for a credit analyst to value the unsecured loan portfolio of a bank from the disclosed information in an annual report. In interactions with bank management, the credit analyst should try to glean if there has been any change in the loan underwriting philosophy of the bank. Is the bank going to lend to borrower types it has never lent in the past? Has there been any change in the way the bank assesses credit risk? Banks have internal processes for grading potential borrowers into different risk categories (typically on a 5 point scale or a 10 point scale). One needs to know if the process of risk evaluation has changed. Most banks disclose what percentage of their loans belong to category 1, category 2... category 5 etc. One needs to see, from year to year, that the percentage has not changed appreciably for the worse, adjusted for business cycle effects. The other worry for a creditor is if there has been a sharp growth in the loan disbursement rate. If there has been a sharp growth in loans, assessing credit quality from the distribution of risk categories of the loans can be misleading. The new loans are unseasoned, and if they have been poorly underwritten, the deleterious effect will be evident only much later. If there has been no sharp growth in loan disbursement rate and no sharp change in the distribution of credit risk by risk category, a credit analyst can value the loans on the books of a bank at face value.

If there is a sharp change in the lending model, a credit analyst should be ready to factor in increased delinquencies. If he cannot quantify the worst case scenario and its impact on the ability of the bank to service debt, he has to back down and plead inability to take a credit call.

Text Box: Basel II & Bank Asset & Liability Estimate

In 1988, the Basel I bank capital norms came into existence when the regulators of banks of developed countries agreed to those standards. Over the next few years, most countries implemented those standards. Broadly speaking, it required banks to set aside capital linked to the credit risk of their banking book. Corporate Loans were assigned a risk weight of 100%. Sovereign backed exposures of OECD countries had a risk weight of 0%. If a bank gave a loan of \$ 100 million to a corporate, its risk weighted assets, calculated as the product of the risk weight and the amount of exposure would be $\$ 100 \text{ million} \times 100\% = \$ 100 \text{ million}$. If the \$ 100 million exposures was to an OECD sovereign, the risk weighted exposure would have been $\$ 100 \text{ million} \times 0\% = 0$. There were various other risk weights between 0% and 100% for other exposures. For instance, the risk weight for exposures to OECD banks was 20%. Banks were required to keep 8% of the risk weighted asset as capital. So, for the \$ 100 million corporate exposure, the bank had to set aside capital of $\$ 100 \text{ million} \times 8\% = \8 million . Obviously, for the sovereign exposure, the bank did not have to set aside any capital.

The main weakness of the Basel I norms was that all corporate exposures were treated alike. A \$10 million exposure to Berkshire Hathaway required the same capital as a similar exposure to General Motors. The other weaknesses, such as no capital requirements for market risk etc were rectified in the early to mid 1990s. Because for a bank (not the perverted use of the word by glorified hedge funds) credit risk is the most important risk, having the same capital requirements for all corporate exposures was a flaw that encouraged

the banks to take on the highest possible credit risk to improve their return on equity, if all went off well.

The main task of Basel II was to remove this anomaly. Of course, there were a host of other issues that were dealt with such as capital requirements for the trading book, capital for operational risk, supervisory role, market disclosures etc. Those interested in the evolution of bank capital norms since 1988 as well as the Basel II norms in detail can read the relevant working papers in the website of the Bank for International Settlements – www.bis.org.

Basel II provided two possible paths for bank capital calculation for credit risk- the Standardized Approach and the Internal Ratings Based (IRB) approach. The Standardized approach specified risk weights for exposures linked to the external credit rating of the borrower. This was an enormous improvement over Basel I. It is better to rely even on rating agencies rather than have the same risk weight for all corporate exposures. Of course, when there is a change in the corporate credit story, rating agencies will be found wanting.

Under the IRB approach, capital requirements are calculated as per a bank's internal assessment of credit risk. Done correctly, this is the best way to estimate credit risk of the banking book. This is how it works- whenever a new borrower approaches a bank for a line of credit, the bank branch's credit team assigns the borrower an internal credit score. In chapter 10 we point out the weakness of using cluster analysis in the case of corporate credit. Nonetheless, this method of calculating capital requirements is superior to having the same capital requirements for all exposures. In some banks this is on a scale of 1 to 5 (with 1 being the best credit quality and 5 the worst credit quality) while in others it is on a scale of 1 to 10. The chief usage of credit scoring is to price the loan- so a corporate rated 1 will be able to borrow cheaper than a corporate rated 5. Standard Chartered bank has a bizarre internal rating system that puts borrowers into 14 risk categories from 1 to 14. Within each category, there are 3 sub categories A, B and C. Grades from 1A to 12 C are for performing assets.

Grade 13 and 14 are non performing assets. This grading of performing assets in to 36 categories is overdoing it. You just can't measure credit prospects that finely, unless you doubled up as an astrologer. Overdoing estimation of credit risk might seem like a harmless pursuit but it reveals a mindset of focusing on the micro while ignoring the macro issues.

At the end of every financial year, the bank can re-score the borrowers on its books based on the latest financial statements. Because the branch manager usually is in close contact with the borrower, he would be also aware of the non financial changes in the borrower's credit quality (the "change in the credit story"). So, at the end of every financial year, the bank's central credit risk management team can calculate what percentage of borrowers rated 1 migrated to credit categories 2,3,4 or even defaulted. This can be done for all rating categories. From this "rating transition matrix", the bank can estimate the probability of default (PD) of rating categories 1, 2, 3 etc. For instance, of the 300 borrowers of a bank rated 3, if 10 defaulted, the bank can estimate that the PD of rating category 3 as $10/300 = 3.33\%$. That's a valuable input for future credit decisions. However, we reiterate, this "rating transition matrix" framework has certain weaknesses which we will discuss in chapter 10. Keeping the weakness of the system at the back of one's mind helps the risk management team to be aware of the ground reality that there is a lot of prose involved in the risk assessment process. One should not get carried away merely because something can be calculated to the fifth decimal place.

A bank takes different types of collateral for its lending facilities. The collateral could include commercial real estate, plant and machinery and other securities of varying liquidity. Based on past experience the bank can estimate the recoveries from different types of collateral. Say from past experience the bank knows that from a \$ 10 million worth of commercial real estate provided as collateral, considering legal expenses and the time value of money, it would recover \$ 6 million. So, the recovery from the commercial real estate

collateral, once the loan defaulted was 60%. Or, the loss given default (LGD) was 40%. The bank's experience of LGD for different types of collateral would be different.

If a bank uses the IRB approach for estimating capital requirements, PD and LGD are the two most important parameters for that purpose. PDs can be calculated for different categories of corporate borrowers, retail borrowers for home loans, credit cards etc. Retail loans such as credit card loans are unsecured loans, so LGD of this facility tend to be very high.

When can a bank go wrong? Let us say a bank had a policy of giving home loans only to homeowners who make a minimum down payment of 20%. Based on this, it would have a value of PD for this line of business which would not fluctuate much from year to year over the course of a business cycle. The bank can price its loans accordingly. What if competitors start giving loans to borrowers who bring in just 5% of the home cost to the table? The bank, not to lose market share, might decide to follow suit. The PD and LGD profile of the loan has changed completely. Because, a lower down payment is acceptable, less credit worthy borrowers, who are more likely to default on their loans, enter the picture. Plus, once the default occurs, since the down payment was lower, the LGD would be much higher. Similar bad things can happen in the corporate loan book. And if a bank enters a new business, it would probably have very limited idea of the PD and LGD behavior of that line of business.

When the Basel I norms for capital adequacy were agreed upon in 1988, banks were vastly different animals. Credit Risk in a bank came predominantly from its lending operations and not so much from counterparty risk on account of derivative transactions. Proprietary Trading was not yet fashionable. The Basel II norms that came into effect in various countries, starting 2005 and later, aimed to ensure that the capital requirements of the banking system itself did not change- individual banks would be required to provide higher or lower amount of capital depending on their risk profile. Because the nature of banks had changed

between 1988 and 2005, having the same capital requirements for the system at large might not have been prudent. Counterparty risk in a lending transaction and a derivatives transaction are both classified as credit risk, but their nature is different. In a lending transaction, the bank had a close relationship with its borrower and knew (or should have known) all matters about the company's operations. Counterparty credit risk emanating from a derivatives transaction with another bank is a different beast altogether.

(The financial crisis of 2008 revealed the weaknesses of Basel II. Since this book was completed, the Basel III norms were published in 2010. For details of this, please see BIS' document "Basel III: A global regulatory framework for more resilient banks and banking systems" published in December 2010. There were two welcome changes in the new standards. The quantity and quality of bank capital will go up from 2013. Many debt like instruments (such as Tier III instruments) masquerading as capital will be done away with. Though some element of debt will continue to be there in a bank's Tier I capital, in times of crisis, this must be written down or converted to equity. This makes banks Tier I bonds even less attractive for a debt investor. But the successful issue of contingent capital instruments (so called co-co bonds) by Credit Suisse in January 2011 that get converted into equity in times of trouble means suckers can always be found. The second change that will come into effect in the near term is the so called leverage ratio. This will ensure that the extent of deleterious leveraging of a bank's balance sheet, based on the devious practice of valuing junk assets with models will be curbed. We have some reservations about one change. The attempt to liquefy a bank's balance sheet through metrics such as the liquidity coverage ratio is unnecessary. If a solvent bank has all its assets in high quality illiquid loans, why worry? Also, rather than discourage banks from using short term whole sale funding through maintenance of a "Net Stable Funding Ratio", it might have been better to specify that a certain percentage of a bank's consolidated liabilities must be public deposits (not corporate deposits which is big for Chinese banks.)

Corporate Secured Loans

Corporate loans are secured usually by plant and machinery, property or against shares.

Working capital loans, discussed in the next chapter, could be secured against current assets.

Typically, loans for general corporate purposes are secured by the first two categories while loans for M&A transactions tend to be secured by shares.

Valuing Loans secured by Property

In many countries, loans secured by commercial property constitute a big chunk of the loan book. In Japan, at the peak of the property bubble, loans secured by property were a sizeable percentage of all loans. Over long periods of time, rise in property prices in an economy usually keeps pace with inflation. That does not mean property prices go up smoothly- they

have a tendency to rise sharply and correct sharply. After each price correction, there is a period of quiet. Loans secured by property during this phase are most secure. Loans secured by property after two years of the commencement of the up cycle start getting risky. Of course, no one knows what the length of the up cycle will be- it predominantly depends on the looseness of monetary policy. Thanks to very loose monetary policy during the 1990s and up to 2006, the United States had a very long property up cycle.

Lenders have a tendency to be pro-cyclical in their loans secured by property. After a couple of years of the up cycle, lenders get more and more aggressive in their property sector lending, which provides a further fuel for the up cycle. That is when a credit analyst should start getting cautious and lenders should be withdrawing from the property sector. They should also get cautious about considering property as a sound collateral type. But that calls for a strong management to communicate to shareholders their policy- else there will be tremendous pressure on the management to generate outsized returns from risky loans.

The problems with providing loans secured by commercial property later in the cycle are manifold. Firstly, the security cover gets less when the property cycle reverses. The situation gets more acute if the loan is highly leveraged. Secondly, loans made later in the cycle would have more outlandish assumptions on the return from the property. When those assumptions do not turn out to be true, the loans head for default. Finally, when the property cycle corrects, there will be many loans that would be defaulting across the economy. So, the recoveries from foreclosed property would be sharply lower. The extent of potential damages can be seen from the example of Stuyvesant Town and Peter Cooper Village apartment complex development in Manhattan. Developers Tishman Speyer and Blackrock Realty paid \$5.4 billion in 2006 at the height of the real estate bubble. Three years later, when the value of the property had plunged to \$1.8 billion, the developers dumped the property on the lenders and walked out. Because the purchase of the property was

overwhelmingly financed with debt, the lenders were left holding the baby when the property market soured.

Leveraged Loans to General Growth Properties- a serious Lapse of Lenders' Judgment

General Growth Properties commenced operations in 1954 as a private company. During that year the company opened its first shopping center. In 1970, the company changed its name to General Growth Properties. A couple of years later it started being publicly traded. During the 1990s the company started expanding its portfolio rapidly, using debt as a fuel for acquisitions. In 2004, the company acquired The Rouse Company in the largest real estate merger in the US till then. By 2009, it had become one of the US' largest mall real estate investment trusts (REITs) (see Text Box: The REIT Business and the Lenders' Proper Role in REITs). In the spring of 2009, General Growth Properties filed for bankruptcy in the largest real estate bankruptcy till that time. Entities linked to the company's commercial mortgage backed securities (CMBS) also filed for bankruptcy- so bang went the notion that securitized malls are bankruptcy remote SPEs, designed to prevent consolidation in the event the parent declares bankruptcy.

There was a role for the lender in the post bankruptcy world of General Growth Properties. Farallon Capital, a hedge fund provided \$ 400 million of debtor in possession (DIP) financing. As per the US laws, the DIP financing ranks senior to loans provided in the pre-bankruptcy period. DIP financing to property backed entities almost always makes sense. The fluff present in the asset prices is taken off during the bankruptcy process when equity gets written off and loans from the pre-bankruptcy phase get written down. Also, lenders to real estate entities during bankruptcy should always take a portion of their returns as equity so as to participate in the inevitable up cycle. Farallon structured the financing in a way that would almost certainly make money- it got 8% of the company's stock and a 3.75% exit fee.

In its 2004 Annual Report, General growth Properties mentioned “it has always been our strategy to use short term debt for acquisition”. Apparently, that did not perturb the lenders. By then, the consolidated financials revealed scary levels of leverage –total debt of \$20.3 billion supported by total assets of \$25.7 billion. Unsecured debt amounted to \$ 8.3 billion. The cover provided by operating earnings for interest payout was less than 1.6 times. There was little room for error- no room for vacancies in the properties leased out, no room for delays in re-leasing. If there was a clear signal to lenders to pare down exposures, the 2004 financials were it- what happened during the next four years was pure momentum into which lenders also got sucked into.

The leverage at General Growth Properties kept increasing over the next few years. By December 2008, total debt of about \$ 25 billion was supported by \$ 27.5 billion in assets. Clearly doomsday was around the corner- the freeze in the credit markets during the winter of 2008 merely hastened matters. During the last quarter of 2008, when General Growth was already defaulting on repayments, the company started cost reduction programs and sale of certain non-mall assets. There was little the management could do in an environment in which the credit markets and real estate markets were hostile. The game was up in 2004- what happened next was merely the employees of the REIT transferring wealth from shareholders and creditors to themselves.

The lessons for lenders in the real estate based lending business are a) the leverage should be tolerable so that the whole edifice does not come crashing down. When market liquidity is tight, credit will be taken away from leveraged institutions and from institutions which do a poor job of communicating and disclosing their risk b) the ratio of real estate earnings minus fixed real estate operating expenses to interest payouts must be tolerable so that the structure does not collapse if vacancy rates rise to 20%. Also, it is practically essential that the interest

rates of the loans be fixed rate so that the interest coverage ratios can be calculated without looking at the external environment.

Valuation of Exposures to Commercial Mortgage Backed Securities (CMBS)

The commercial mortgage backed securities (CMBS) market always worked on fragile assumptions, particularly for the junior tranches. Critical to evaluation of the credit quality of a tranche is property valuation and extent of subordination of the tranche in question. For instance, a CMBS tranche which has 20% of the face value of the underlying loans junior to it (and if only loans were used to buy the properties), has a 20% cushion for fall in value of the collateral properties before the tranche ceases to have full asset cover. There is a big difference if the loans backing the tranche were made in a real estate bull market or a bear market. If the properties were acquired at the height of a bull market, the 20% cushion can get quickly wiped out when real estate prices correct. Additional risk in the CMBS structure comes from difference between the maturity of the underlying loans and the CMBS securities issued backed by those loans. The assumption is that this maturity mismatch can be taken care by issue of new CMBS securities to pay off the old CMBS. If refinancing cannot happen, asset sales would have to be resorted to, which is usually difficult without taking a haircut in an environment in which refinancing is hard. In summary, from a CMBS tranche valuation point of view, the creditor can value the tranche at face value provided there is adequate cushion for fall in real estate prices. What is an adequate cushion depends on where one is on the real estate cycle and where societal debt ratios are headed.

Between 2005 and 2007, S&P merrily assigned AAA and other high ratings to CMBS transactions. CMBS delinquencies in the United States were 0.27% in March 2007. Towards the end of 2009, the percentage had risen to 4.5%, and the peak in delinquencies is at least a few years away. S&P's methodology for rating CMBS assumed that refinancing can easily be done- it ignored the maturity mismatches and interest rate mismatches (and even currency

mismatches) between the original commercial property loans and the CMBS issued secured by those loans. True, there were some hedges in place, but these were of questionable value. S&P also ignored the dangers of rising real estate prices in the backdrop of ever increasing societal debt ratio. Suddenly, in April 2008, S&P implicitly declared that it had overrated the CMBS sector and placed 40% of the AAA ratings assigned in 2005, 70% assigned in 2006 and 90% assigned in 2007 under watch for possible downgrade. It was hardly surprising that a far bigger chunk of issues rated in 2007 were at risk than those rated in 2005, because the real estate bubble had inflated further. 100% of issued assigned a single B rating between 2005 and 2007 were listed for possible downgrade. The agency made a jackass of itself in July 2009. On the 14th, S&P downgraded some CMBS issues originated by Goldman Sachs, Credit Suisse and others – some as drastically as from triple-A to junk. Within a week, the agency reinstated many ratings back to triple-A on the back of a “revised methodology”. We wonder where the pressure came from. Fitch, after rapidly downgrading several issues, said there was nothing wrong with its methodology causing one commentator to remark that Fitch was eager to claim the title of CMBS court jester from S&P.

Text Box: The REIT Business and Lenders' proper role in REITs

A real estate investment trust (REIT) is a company that manages income generating real estate. An investor in a REIT can participate in the risks and rewards of the real estate business just like an investor in any company participates in that industry. Income is realized through lease rentals and sale of property, hopefully at a profit. In many countries, REITs are exempt from income tax provided they invest a certain percentage of their funds in real estate, draw a certain percentage of revenue from that business and agree to a high dividend payout ratio. Because REITs are run to advance the interests of the REIT shareholders, often REITs borrow money so as to increase shareholder returns. Most REIT investors are institutions such as pension funds and endowments.

REITS are of three types- equity REITs which own and operate real estate; mortgage REITs which make loans against assets secured by real estate and hybrid REITs which have characteristics of equity REITs and mortgage REITs. Creditors to REITs should be aware of the different structure of REITs because that determines their recovery if a REIT runs into trouble. A traditional REIT owns its assets directly through an operating partnership. An Umbrella REIT is one where properties are held by different property partnerships. This facilitates the participation of individuals or companies that own land but give it to the REIT for development in return for shares of the REIT. A Down REIT is a structure which combines features of the Traditional REIT and the Umbrella REIT.

Most REITs invest in commercial real estate property such as hotels, health care property, retail facilities such as malls, office spaces etc. As with any asset class, returns are determined by the entry price and the state of the real estate market at exit.

Creditors should remember that REITs have very little retained earnings on account of the requirement of high dividend payouts. So, the credit analyst has to rely on the valuation of the properties (the analyst must check and see that there are no overstated values). Also, earnings of REITs can drastically fall in value whenever the economy tanks and real estate vacancies rise. And, if too many variable interest rate loans are present in the REIT capital structure, it increases the likelihood of problems with debt servicing. The creditor also has to pay close attention to the asset management company that manages the REIT, its tendency to over-expense, the incentive structure for employees and the performance agreements. REITs may borrow non recourse- recourse only to the property which is funded or full recourse. The creditor should not draw too much comfort from the NAV quoted, particularly when a credit funded real estate bubble is underway.

Project Finance Loans

It was discussed in chapter 1 that lending to one off projects is a venture, which lenders should participate in at their own peril. We are not talking here about new projects executed by a strong company, the size of whose assets are much larger than the project to be executed and with the company in question having a strong balance sheet.

The following are the project loans which can be financed by debt and whose value we would consider equal to their face value:

- Government infrastructure projects with a strong sovereign backing in the event of project failure
- Loans to loss making state owned entities for executing projects based on the expectation of sovereign bail out
- Full recourse loan to a corporate for executing an expansion project
- Full recourse loan to a corporate for executing a new project, based on the clear understanding that the corporate should not have problem servicing debt if the project does not pan out as planned
- Non recourse loans to a corporation for executing projects (not one off project) with strong contracts with credit worthy entities for construction, operation and maintenance, off take of goods produced by the project at a certain fixed price for a certain volume (say a power purchase agreement with a creditworthy utility, which agrees, during the tenancy of the loan, to purchase daily a certain number of units of power at a fixed price).

China's ICBC- Creditors' delight, Shareholders' agony

The Industrial and Commercial Bank of China Ltd. (ICBC) was founded in 1984.

Historically, the bank has had a high level of NPAs- chiefly on account of loans to loss making state owned enterprises. In 2006 the bank had its IPO and it became the bank with the highest market capitalization in the world.

In China, creditors to banks can breathe easy- most of the loans have been made to loss making State Owned Enterprises (SOEs), but the state always ensures that the bank does not have solvency problems by infusing capital periodically for write downs. Why shareholders (particularly international ones) participate in the charade called Chinese banking is an abiding mystery unless they are playing the game "passing the parcel" and expect a greater fool to be always around the corner to off-take their shareholding.

ICBC, per its 2008 annual report, had some pretty impressive statistics- 3.1 million corporate banking clients and 190 million personal banking customers. For some uncertain reason, Moody's has rated this bank two notches higher than S&P. In 2006, S&P rated the bank BBB+ while Moody's rated it A2. In 2008, S&P rated it A- while Moody's rated it A1. Perhaps it is due to their "Joint Default Analysis" methodology wherein expectation of state support in the event of distress is accorded due weight age. Hence Moody's assigned ICBC the same credit rating as the People's Republic of China. Moody's methodology is the right one, particularly where large institutions in China are concerned. What can puzzle one is why Moody's does not carry its reasoning forward and assess the impact on sovereign rating from such a bailout. Rating of the banking system (systemically important banks) and the sovereign rating are closely intertwined. If a banking system is indulging in foolish speculation or lending to non viable entities/projects as directed by the state, the credit analyst should first add the expected quanta of resources required for the bailout to the sovereign's debt before assigning the sovereign its rating. Then all the top banks of the

country should be assigned the same rating as the sovereign. It does not matter if the leading banks are owned by the state or are privately owned. One should use this principle only for senior debt and not for debt capital instruments of banks.

ICBC has a very healthy Loan to Deposit Ratio, unlike its western counterparts. At the end of 2008, the ratio was 56.4%. Very high loan to deposit ratio implies excessive reliance on the wholesale funding market for short term liabilities. Loans to the top 10 customers were 20.4% of total loans in 2008 (they constituted 21.7% of total loans in 2006). Normally, such concentration would be a cause for intense concern, since if these loans turn bad, the capital base can be severely impacted. In the case of ICBC, the loans were to SoEs, so that mitigates the risk.

At the end of 2008, 52% of the loan book comprised of project loans. The nature of the project loans was not too much of an issue- most had indirect sovereign linkage. What is of concern is that 10.6% of the loans were for property development- China's property markets were red hot when the loans were made.

Net investment in securities was 31.2% of the bank's assets at the end of 2008. The investment book was really solid- government securities constituted 20.5%, policy bank loans 29.1%, central bank bills 38.6% and other bonds constituted 11.8%. Cash and balance with the central bank was 17.4% of total assets. The bank had a very negligible exposure to the US sub-prime market.

Clearly, from a credit viewpoint, this was a solid bank. Most of the assets have the long shadow of the state engulfing it in a warm embrace, thus lending it comfort and credit standing. But will shareholders ever make money out of this bank? Other than taking advantage of periodic ramp up of share prices, over the long term returns from this bank and most Chinese banks will prove more fruitful in the realm of hope than reason and actuality.

Leveraged Loan Valuation

M&A financing seldom make sense, particularly those deals which require the application of tons of debt and which are secured by shares of the acquired company. We would adopt a two stage valuation process for valuing the loans. Obviously, one can't value the loans, loan by loan, but consider the valuation of the biggest three or four such loans and use the same scaling factor for the other loans in the portfolio. Firstly, we would remove the takeover premium from the purchase price and arrive at the adjusted value without the premium. Next we would calculate the ratio of the loans for the takeover to the adjusted value. If this ratio is greater than 85%, we would value the loan at LGD, because at that elevated ratio, it is no longer a credit instrument one in valuing. If the ratio is less than 60%, we would consider the full face value of the loan. In between these two, we would apply a sliding scale. Obviously, the percentages, 60% and 85%, are not sacrosanct- judgment, as always, has to be used to determine the apt values depending on where one is on the credit cycle.

The perils of LBO financing were best revealed by the fate of KKR Financial Holdings, the debt financing arm of private equity shop KKR. In March 2009, the company reported a loss of \$ 1.2 billion, mainly on account of write down in value of loans provided for LBO transactions- mostly transactions where KKR was the firm doing the buyout. During that quarter, the company wrote down 80% of the value of the loan provided for the takeover of semiconductor company NXP and 88% of the value of the loan for the Capmark Financial acquisition. The company had also financed the takeovers of newspaper company Tribune and chemical company Lyondellbasell, both of which subsequently filed for bankruptcy.

At the height of the LBO boom in 2007, KKR bought payment processing firm First Data for \$28 billion. The company paid a 26% premium to an already elevated share prices. The takeover was financed by a consortium of banks lead by Citigroup, all salivating at the \$600 million of fees the deal generated. However, by the time the deal closed in the autumn of

2007, credit markets had soured. The banks sold the loans at a loss or wrote down their values. KKR Financial also provided loans for the deal.

Valuation of Retail Loans

Retail loans can be unsecured like credit card and personal loans or secured such as car loans and home loans. From a valuation standpoint, except during periods of very high household debt, delinquencies tend to be fairly stable. And if those delinquencies have been priced into the loan, the value of the loans is the same as book value. In times of high household debt, one needs to clearly separate out the valuation of unsecured and secured debt portions of the retail loan portfolio.

Credit Card and Consumer Loan Portfolio

There is no easy way of mass producing retail loans through a risk score such as the FICO score. The old fashioned way of a banker examining salary slips and bank accounts is the only way out. Let us say a bank relies on FICO scores for apportioning credit cards and consumer loans to retail borrowers. If the quantum of such loans is small, the credit analyst can ignore those loans and look at other parts of the asset side of the bank's balance sheet. What if the amount of such loans is a large portion of total assets? In that case, unlike a rating analyst who would assume all is hunky dory, a credit analyst must declare that he does not have the requisite information for valuing the loans and hence not in a position to judge credit quality. But is not the default data over the last business cycle an adequate starting point to estimate the likely losses over a cycle from the credit card portfolio? Yes, the data from the previous cycle would be useful if you had used a driver of credit quality to apportion credit during the previous cycle. For instance, if the bank had a particular salary threshold for giving a certain amount of unsecured/semi-secured (consumer loan), and it follows the same criteria all along, one would get roughly the same default experience- magnified or

diminished by the extent of the current down turn in comparison to the previous down turn. The whole principle breaks down when credit was handed out, not based on the drivers of credit quality (we explain in chapter 10 why the FICO score is not based on causality of credit quality). Then one cannot predict delinquency experience based on past data. For analytical purposes, one is better off using economy wide data rather than try to extrapolate based on past data, if flawed methodologies for assessing credit risk had been employed in the past.

One suitable proxy data for assessing the quality of credit card and consumer loan portfolio and hence the valuation of the portfolio is the household debt to GDP ratio. One might argue that the unemployment rate in an economy would also serve as a proxy, but we argue that the unemployment rate is a lagging indicator and there would not be too much time to react to take corrective measures on the portfolio and for giving out fresh loans. If one sees household debt to GDP climbing precipitously in the previous few years, one can foresee impairment in credit quality of the portfolio round the corner. The same would be true about secured loans such as residential mortgages and car loans- but the impact is dimmed considerably by the borrower's equity in the asset. If household debt is under control, one can assume that the portfolio carried at fair value is the correct value (from the creditor standpoint).

Credit Cards and the Capital One Story

Capital One Financial Corporation is going to be one of the most impacted credits in the United States as the country adjusts to the new normal of lower household debt, increased savings, lower consumption and more prudent household behavior all around.

Capital One is a big credit card issuer- in 2009 the company was the fourth largest issuer of Visa and Master Cards in the United States. This unsecured loan book was a wonderful high

yielding asset as consumers rolled over their monthly payments by paying only the minimum amount due. No body raised a question on the quality of the borrower who chose to keep a high cost loan outstanding instead of paying it off in full at the end of the month. Perhaps, neither was Capital One, as it kept securitizing receivables of its credit card portfolio. The institution did retain risk in the portfolio but when income was poring in and delinquencies were low (unemployment rate was very low in the US during the credit/construction boom years and customers could tap their home for home equity loans). The more consumers consumed, the higher the income for Capital One.

Capital One's reliance on securitization (something that has to come down in the new normal), meant that the company could have a credit deposit ratio of 135%. A credit deposit ratio higher than 70% exposes a company to fluctuations in the wholesale credit markets. The bank's overall credit deposit ratio has only one direction to go- southwards. That is one reason that profits will take a severe beating in the long run. In the short run, thanks to low interest rates, the cost of funding is artificially low.

During the first two quarters of 2009, the financial institution did take a net charge-off of \$ 2 billion per quarter. The percentage of non performing credit cards rose to 9.5%. The charge-offs were not only from its credit card portfolio, but also from its consumer loan, small business loan and auto loan portfolios. Loans to consumers were \$ 62 billion at the end of 2008 out of total loans of \$ 101 billion- not a sweet spot when one considered the fact that the consumer was going to retrench in a big way. The only way the company can change its bleak story is by changing its business model- always a risky thing for creditors.

Valuation of Residential Mortgage Portfolios

Mortgage portfolios need to be separated between conventional mortgages (fixed or floating rate loans with a down payment by the borrower of at least 15% and hence a loan to value

(LTV) of not more than 85%) and unconventional mortgages which includes all mortgages that do not fall in the conventional category. Unlike many countries, in several states of the United States, residential mortgages have a non recourse flavor- that is, should the borrower default, the lender does not have any recourse to the other assets of the borrower.

Conventional Residential Mortgages

The most suitable mortgage product, for all concerned- borrowers, lenders and even governments – is the conventional long dated fixed rate levelized mortgage with a sizeable down payment. The down payment must be made from savings and not through borrowings from a second lien loan. Then the lender is assured of a few facts. Firstly, he knows that the borrower does have a tendency to savings and not reckless and insatiable consumption. The down payment serves more to judge character than assuring the lender of a lower LTV loan and concomitant cushion against fall in value of the home.

Secondly, because the monthly installment is fixed through the tenure of the loan, the lender can assess the size of the monthly payout vis-à-vis the borrower's monthly income. The borrower might be out of a job for a few months due to factors beyond his control such as layoffs etc. Because the down payment assures that the borrower is not a deadbeat, the lender can be reasonably sure that the borrower will be employed in a few months. The moment such an unforeseen event such as a job loss occurs, the lender should help out the borrower, in the sound knowledge that his money is ultimately safe. In countries where unemployment benefits are substantial, the lender can insist on monthly interest payments but stop the amortization of principal. That freezes the principal outstanding on the loan. Once the borrower gets employed again, the new equated monthly installment can be worked out through a combination of increasing loan tenure and increasing monthly payment (if it does not put undue pressure on the borrower). In countries without unemployment benefits, the lender should freeze all payment requirements and add the interest accrued to the principal

outstanding. Individuals in such countries tend to be more aggressive in their job search efforts. Once the borrower is re-employed the monthly payments and tenure can be reworked as earlier.

For all loans with an LTV of less than 80%, regulators must show more wisdom in how these otherwise sound loans should be shown on the books of the lenders if there is a temporary non conformance to loan repayment conditions. In countries where interest can be serviced out of unemployment benefits, such loans should not be classified as non performing, provided interest is being serviced, for a period up to 1 year. In other countries, the loan should not be classified as non- performing as long as the lender has a process for checking delinquent borrowers to see if they are making an honest attempt to get re-employed and have not cast their burdens, on a permanent basis, on long suffering relatives or the state. Of course, a lender could always get the borrower to take out unemployment insurance when he sanctioned the loan, or he could provide such a cover to the borrower through suitable pricing of the loan.

Merely because regulators are smart enough to understand the simple mortgage product, they should not over regulate this sound market and products for non performing loan categorization as well as capital adequacy standards. Regulators should worry only if this sound mortgage product mutates into something virulent (such as zero down payment loans, negative amortization loans etc). Else, the regulators' time could be more productively spent in trying (and perhaps occasionally succeeding) in understanding the "weapons of mass destruction" in the banks' trading books. Anyway, creditors (and shareholders) who rely exclusively on the thesis that regulators know what is going on have only themselves to blame for taking their eye off the ball and the ball knocks their outstanding principal off. One is not dismissing the need for common sense based regulations but the theory that bureaucratic institutions can keep an eye on slicker individuals through elaborate dos and

don'ts can work only in the inner recess of Alice's wonderland. So, instead of relying on pointless agencies which merely lull everyone into a fall sense of security, it is the role of creditors to keep bank management honest through ceaseless vigilance and covenants in loan agreements.

A risk that lenders must factor in is the death of the borrower when a home loan is outstanding. Of course the lenders, particularly in low LTV loans would be able to recover their principal through foreclosure- but that is not a good idea. Besides the fact that it can be a bit repugnant to put the family of an honest borrower onto the streets, it does not serve to enhance the franchise value of the lender. It is far better that lenders have an insurance cover for such an eventuality and price this in the loan. Or, the lenders could get the borrower to get the insurance done separately.

How does a lender to a bank value the conventional mortgage portfolio? It is safe for the creditor to assume that the value shown in the balance sheet represents a true and fair view of portfolio value. The only things that should worry a lender are if the portfolio grows too rapidly or if there has been a relaxation of loan underwriting standards.

Valuing Pools of unconventional Mortgages

Any mortgage product which has zero down payment should be valued very cautiously and the valuation depends on where one is in the property cycle. If property prices are on a downward trend for more than the past two years, or are on an uptrend for less than two years, one can expect a high level of recovery in case the loan defaults. Based on the understanding that in a zero down payment loan the overwhelming reliance is on LGD, if the loans are made in the 2 year down to two year up period (remember this period is usually more than four years because after a down cycle, there can be an extended period when property prices do not move), as in the case of conventional mortgages, one can assume that

the carrying value is a reasonable value for a creditor to assume. Valuation of zero down payment loans made in the up cycle two years after the commencement of an up cycle can be assumed at home values two years after the up cycle commenced.

Negative amortization loans should be valued at the point in time when the loans were given. For all subsequent periods, one ignores accumulated interest in the valuation. The subsequent increase in outstanding principal of the loan should be deducted from shareholders' equity. At the point of grant of the loan, the loan should be valued like a zero down payment loan.

Buy to Let Loans and the end of Bradford & Bingley

Bradford & Bingley (B&B), the UK based financial services provider, was set up in 1851 as a building society focused on mortgages. B&B was the UK's biggest buy to let mortgage lender. It was also a big player in the UK's "self-cert" mortgage market where the borrower certifies his own income without producing documentary proof. The self-congratulatory 2007 annual report was a case study of pride and ignorance going before the downfall.

The buy to let mortgage product is one where a homeowner buys a house with a mortgage and with the express purpose of letting it out on rent. The income required to cover mortgage payments was derived from the rent generated from the property rather than from the borrower's salary/income. Like the US sub-prime mortgage where the lender relied on rising home prices rather than borrower income, the UK buy to let loan relied on property rentals rather than borrower profile. If interest rates went up, requiring higher monthly payments on the loan or rentals fell, the edifice of the loan would collapse. The driver of the buy to let market was the private rental sector. The argument justifying the product was that a growth in population and reduction in average household size would cause a perpetual growth in rentals.

In its 2007 annual report, the institution described self-cert loans as lending to customers “with non standard employment,” whatever that meant. The director’s report was convinced that this was an attractive product.

Besides this exotic loan book, B&B also had a weird investment book. It held £125 million in SIVs, of which £64.2 million were impaired. It held £140 million investments in CDOs of which £30.2 million were impaired. Clearly, this was a management hell bent on doing foolish things, not mitigated by anything that could be explained rationally.

All seemed hunky dory in 2007, if you looked only at the income statement. The cost to income ratio had plunged from 60.7% in 2004 to 42.8% in 2007. The net interest margin at 1.1% in 2007 was not much lower than the 1.26% in 2004. The return on equity had jumped from 16.1% in 2004 to 19.1% in 2007. Superficially, the loan portfolio looked good- the average LTV of the portfolio was only 55%. Buy to Let loans constituted 45% of the total loans while self-cert loans were 16%. Average loans in arrears during 2007 were only 1.63% of the total book. In 2008, the UK economy wobbled, the rentals were dropping and the amateur buy to let landlords and self certified borrowers were experiencing financial difficulties. By June 2009, 5% of the total loans were defaulting. Hard equity at the end of 2007 in B&B’s books was only £1.2 billion. At the end of 2007, the residential mortgage portfolio was £39.4 billion. So, when 5% of the loans defaulted, the foolish game was up.

Handling of Venture Loans

In the very first chapter, it was stated that it is not the creditor’s business to get into venturesome activities. Loans for ventures, not guaranteed by creditworthy entities are venturesome activities. If the loans are unsecured or collateralized by shares of the entity lent to, the value of the loans needs to be assumed to be zero, for credit analysis. Secured loans should be valued at recovery values of the assets securing the loan.

Analyzing the Trading Book

Running a trading book is like running a venture, with negligible certainty of outcome. It is crazy for lenders, who shriek with horror at lending to a corporation at debt to capital ratios beyond 2, to merrily participate in financing trading pursuits at gearing ratios greater than 20. The assumption that trading book assets will not lose substantial value in the short time that they are held in the books, when backed by strong risk management systems and processes, has not been borne by facts and past events. The hope of the lender is, should the assets lose value, the bank can always pay up margin calls from government guaranteed deposits. Trading is a zero sum game- for every smart guy making money in a trade, there is a smart guy who lost an equal amount (some argue that for every moron making money on a trade, there is a moron who lost money- you take your pick). That is, unless the trading asset is a Level 3 asset/liability when both the entities can merrily show a profit aided and abetted by the valuation models of the two entities. In fact, as an extension of this argument, governments should invest in level 3 assets with both the counterparties and create value rather than invest in R&D labs and funding of universities.

The only trading a creditor should encourage is trading backed by inside information (where it is no longer a venture). Alas that is illegal – so the creditor has to do the next best thing- keeping away from trading all together. The only conditions under which trading is tolerable to the creditor is if the size of the trading book is a small fraction of shareholder's equity, which can be written off without causing too much collateral damage.

Derivatives – Assets, Liabilities and Trading

Derivative instruments are held at fair value in the asset and liability sides of a balance sheet with marked to market profit and losses recognized through the income statement. The problem is that unless the derivative instruments are exchange traded, one needs to know the

credit risk emanating from the marked to market profit in a contract with a counterparty.

And, the credit analyst needs not only current value of the assets and liabilities and the current financial strength of the counterparties but also how the change in the value of assets and liabilities can impact the credit quality of the counterparties. Looking at VaR (see Text Box: A Horse called VaR) as a measure of how derivative asset and liability values can move in future is less than useless.

The truth is that financial institutions having a debt equity ratio beyond 8 (at least as far as the trading book is concerned) just do not have a credit story, irrespective of the risk weights of those assets and associated capital adequacy. A bank might proudly state that its Tier I capital adequacy is 12%, but that can horribly misstate the capital requirements by underestimating counterparty credit risk and rapidity of change in market values of assets. So, if a financial institution has a debt equity ratio beyond 8 for its trading book (so called capital instruments such as hybrid Tier I and Tier II debt should be counted with debt), there is inadequate cushion available for creditors and such an institution should be outright rejected by credit counterparties. The argument that by that metric, many big financial institutions would be unsuitable for credit financing is neither here nor there.

For a traditional home loan, it is said that any loan with an LTV beyond 80% is imprudent. A variation of that metric has to be applied by lenders to the bank itself. Just like home loan borrowers with very little equity in the game are not suitable for credit, banks with debt equity ratios beyond 10 on the lending book and beyond 8 on the trading book do not afford creditors any cushion for things going wrong. The trading book requires lower debt equity ratios because in addition to credit risk that it shares with the lending book, it also has market risk emanating from the fall in the fair value of an asset or increase in the fair value of a liability.

Let us say a bank has a debt equity ratio of below 8 on its trading book. Should the analyst declare that all is well and there are no risks from the trading portfolio? No, it merely means that the bank is not foolishly leveraged, but not necessarily bankable. Obviously it is impossible for a creditor to value each derivative contract that the bank takes on because he cannot know the details of each contract and associated counterparty. There is no alternative to relying on fair value valuation, provided the quanta of Level 2 and Level 3 assets are small. Banks with high level of Level 3 assets on their trading book are simply unbankable.

How about assets that cannot be valued based on market prices but are valued based on “valuation techniques” as IAS 39 euphemistically refers to them? Credit analysts would do well to ascribe a value of zero to assets that are valued based on some model unless they have been provided considerable details on the asset and they can approximately value the asset based on common sense considerations (for instance, we would value the third to default tranche of a CDO using common sense methods (as discussed in Chapter 10) rather than so called correlation models, which can permit both counterparties to a derivative contract to carry a contract at a profit on their books) and own risk tolerance.

Likewise for Level 3 assets, classified thus using SFAS 157 : Fair Value Measurements, unless a great deal of detail is available, it is optimistic to ascribe a positive value to the asset (in fact, for all you know, what has been presented as an asset might actually be a liability).

Following the crowd, because everyone else is dealing with such counterparties is foolish.

Had it not been for the US government bailout of entities such as AIG, several counterparties holding a high level of Level 3 assets, or counterparties with high level of Level 3 assets would have gone to Hades. Creditors should not expect a similar outcome next time because debt levels of the US and European governments are hitting unmanageable levels. Also tax payers are increasingly hostile to frivolous use of their money under the questionable thesis that banks cannot be allowed to fail like manufacturing companies.

Was Deutsche Bank an investment Grade Risk in 2009?

On December 31st 2007, Deutsche Bank had loans carried at € 198.9 billion on its balance sheet. Its net trading assets amounted to €441.4 billion. Its deposits were to € 457.9 billion. In short, the depositors' money was recklessly being used for trading purposes. In the winter of 2007, any resemblance between Deutsche Bank and a bank was purely coincidental. If you removed the deposits from the liability side of the balance sheet, the set-up was no different from a hedge fund. Why this did not shock German banking regulators is beyond any thoughtful analyst. German politicians have a disdain for hedge funds and private equity funds using colorful phrases such as "locusts" while referring to them. However, they were not perturbed that a hedge fund was using funds from their country's depositors to speculate on exotic derivatives.

Rating agencies, wholly immune from frailties such as irritating a good fee paying client, thought it fit to ignore what was going on in the trading book, choosing to soothe themselves and the world with statements on how good the risk management systems were and how the VaR (refer to Text Box: A Horse Called VaR) was extremely tolerable. In fact, in May 2007, Moody's upgraded Deutsche's senior unsecured rating to Aa1. In August, preferring to be a bit more cautious, S&P upgraded Deutsche Bank from AA- to AA. The outlook was stable, which S&P said meant that additional rating change was not anticipated in the next one or two years. In August 2008, after Deutsche announced a massive write down of assets, S&P downgraded its credit rating to AA-. For the edification of S&P, the role of an analytical agency is to predict the likelihood of write downs, not to announce credit downgrades after a bank announces write downs.

In December 2008, after having been downgraded to A+ by S&P, Deutsche's balance sheet was actually looking better. True, the asset quality of its loan book, particularly of its leveraged loan portfolio was deteriorating rapidly. Deutsche Bank had loans with a face

value of € 269.3 billion on its balance sheet. Its net trading assets amounted to € 222 billion. Its deposits amounted to € 395 billion. So, if any downgrade was to have been done, it should have been in 2007. Instead, there were rating upgrades. To get a feel of the size of the trading book, Deutsche's shareholder equity at the end of December 2008 was €30.7 billion. Now Deutsche Bank might claim that they have superhuman trading prowess. Even if it does have the best trading team (if such a beast does exist), what is there in it for the creditor? The most alarming statements in the 2008 annual report, pertaining chiefly to the trading book, was "in reaching estimates of fair value management judgment needs to be exercised.The specialist model validation and valuation groups focus attention on the key areas of subjectivity and judgment". These statements should be the cue to the creditor to log out. To the creditor, that implies that most of the assets could be unspeakable junk, whose values are what management wishes them to be. For roughly €87 billion of financial assets held at fair value (whatever that meant in that context) the management confessed it did not even have from the market the value of the underlying driver of the contract, much less the value of the contract. For example, if a bank had an option to buy the Zimbabwean dollar, how does one price that option, when even the value of the Zimbabwean currency was not available in the market? Does one use the black market value? Does one use the grey market value? Or is it best to use a value assigned to it by a management model, management whose bonus depends on that value? Go figure that out. After all, one moment Merrill Lynch was carrying \$31 billion of mortgages in an investment portfolio (the rating agencies went merrily with that valuation), the next moment the portfolio was sold to investment fund Lone Star for 22 cents to the dollar. Not only that, but Merrill provided financing for 75% of the purchase price- implying that the true sale price was much lower than 22 cents to the dollar.

It would not be surprising if Deutsche's counterparties to derivative transactions also think, thanks to the models their managements fiddle with, they are in the money to the same extent

that Deutsche is. Alas, trading is a zero sum game and not a pursuit where value is created. In fact, for the shareholders and creditors of both counterparties, it is a negative sum game, thanks to trader entropy (bonuses and other paraphernalia incurred before the actual returns are known). So, it is not possible for both counterparties to be in the money. The only way a semblance of realism can be arrived at is if the auditor gets to see both legs of the transaction. Or, if the auditors of the two firms can have a short chat over the telephone. However, it is not in the interest of either counterparty to display such vulgar transparency. In this world of fearful uncertainty, where values of assets are ascribed based on wishful management thinking, where credit analysts would fear to tread, rush the rating agencies to give their 2 cents of opinion and collect their million dollar fees. The CDS market of course had a vastly different view on Deutsche Bank's credit quality at the end of 2009. Granted CDS markets overprice risk during times of turmoil- but Deutsche bonds should definitely not have been in the portfolio of a widow or a orphan or anyone else who wanted his money back with reasonable certainty.

Prime Brokerage- Lending for Trading is worse than Proprietary Trading itself

A prime broker provides a centralized securities clearing facility for hedge funds. The hedge funds' collateral requirements are netted across deals handled by the broker. A prime broker, who is usually a commercial bank or an investment bank, also provides financing by taking the hedge fund assets as collateral. And he collects a brokerage whenever the hedge buys and sells assets.

The prime brokerage business should definitely be carried out of a bank's equity. The merit of the prime brokerage business depends on how much brokerage the business generates- not from how much net interest income is generated from lending to the hedge funds. The credit analyst should subtract the following amount from the bank's capital in his analysis –

Amount to be deducted from capital = Loans to hedge funds- estimated brokerage income from prime brokerage

50% of this amount should be deducted from Tier I capital and 50% from Tier II. Prime brokers analyze the risk of their financing positions using VAR and we know that's not the smartest thing to do.

In fact, a credit analyst should be more favorably inclined to proprietary trading than prime brokerage. At least in proprietary trading, there is as much potential for upside as there is for downside. The risks and rewards are more skewed in the case of loans to hedge funds. Even the brokerage income generated without deploying capital does not compensate for this. In addition, there is the possibility of double leverage from the prime brokerage business through re-pledging of client assets to secure funding.

Text Box: a Horse called VaR

VaR, as Value at Risk is affectionately referred to by its practitioners, is a measure of how much money a trading institution can lose. VaR is quoted in terms of two parameters- time period over which the losses can occur and a probability fraction with which you state that trading losses in the time period will not exceed that amount. For instance, if a bank states that its 10-day 99% VAR is \$ 100 million, the bank, from its internal models, is estimating that 99% of the time, an adverse change in its trading portfolio will not result in losses more than \$ 100 million in a 10 day period. You could also have a 1 day 99.99% VAR or other variations.

Anyone who lived through 2007 and 2008 would have empirically known that VaR's claims were bogus. We will not go into bank CEOs making statements to their gullible stakeholders (perhaps they were fooling themselves too) regarding VaR of their trading books. These CEOs were later to prove to be embarrassments to themselves and to the institutions they

headed. What we, as credit analysts (or equity analysts who want the truth and not those who want to do a short-term pumping up of a stock), would need to ascertain is whether the theoretical underpinnings of VaR are justified and if yes, can the weaknesses noticed empirically over the last few years be rectified through tweaking.

Engineers who build airplanes and nuclear reactors deal with complex and intractable equations, those that in the years prior to cheap computing could not be readily solved. The engineer had to make those equations more tractable- so he made simplifying assumptions. One must remember a few things here- firstly the engineer was dealing with the unchanging laws of nature- the relationship between the left hand side and the right hand side of a physics equation can be split asunder, like Moses parting the Red Sea, only under divine intervention. Secondly, when the engineer ignores terms of equations to make the equation solvable, he knows exactly the order of magnitude of the terms he is ignoring. Only when a person solving an equation knows the order of magnitude of the terms he is ignoring, he can tweak the final results by multiplying his findings with a factor for safety. If he was multiplying his findings with a factor of safety without a clear and timeless understanding (i.e. the magnitude of the assumptions made doesn't change with time) of the impact of the assumptions made, an airplane thus built will be flying less on a wing and more on a prayer.

To calculate VaR of a trading book, the bank first establishes the relationship between the value of an asset and a driver of value such as interest rates, exchange rates etc. Now, this relationship does not change. So, if the value of a 10 year zero coupon government security held in the portfolio is worth \$ 100 today when the 10 year rate is 8%, he can calculate what the value of the asset would be if the rate changes to 8.1%. Also, if the portfolio has a call option on Euros to be settled in US Dollars, a bank can estimate its value today. But an analyst is not only interested in the value of the two assets today. A financial analyst would be interested in knowing the worst case drop in value of the two assets over a particular time

period. What is the likelihood that the ten year interest rates would rise to 8.3% in 10 days? What would be the likelihood of the Euro/USD exchange rates moving to a particular level in that period? And most important, what is the correlation in the movement of the 10 year rates and the exchange rates between Euros and USD. Alas, while the relationship between the movements in the value of the 10 year bond with 10 year rates is invariant, the movement in the 10 year rates is not governed by immutable laws. Likewise, while one can estimate the value of the call option in response to currency movements, the movement in the exchange rate does not move in an immutable manner like the laws of gravitation or electromagnetism. And the correlation between the two underlying (the 10 year rate and the exchange rate) factors never stays constant.

To get around the fact that the value of exchange rate and the 10 year rate tomorrow is an unknown today, the VaR methodology ascribes a probability distribution for the exchange rate and the 10 year rate based on past volatility of such values and based on past correlation between the two parameters. There is no underlying reason why the parameters should follow the chosen distribution even if they did in the past (which actually they would not have). The distribution was chosen based on ease of computation- not because it reflected the underlying phenomenon. Worst of all, there is no earthly reason why the correlation between interest rates and exchange rates should have the same value as in the past.

Exchange rate changes would reflect deep structural relationships between two economies- which drastically changes with time.

The absurdity of the VaR framework is evident even when one uses only two parameters. In the real world, a bank would consider correlations among several parameters such as several exchange rates, commodity prices, and interest rates. That compounds the absurdity. In April 2008, S&P finally came to the conclusion that the losses posted by banks in 2007 and 2008 were much higher than what could be explained by VaR. As usual, they came up with the

wrong thesis- “VaR is not a measure of losses in times of stress but rather of large losses under normal trading conditions”. VaR does not work because the building blocks do not reflect the underlying phenomenon of movement in market prices, a phenomenon which unlike the laws of physics is not unfringeable. So what does S&P do- they decided to scale up regulatory VaR capital by a factor of 3 to reflect “fat tail” outlying risks and other risks. Remember, when the engineer did a scaling up using a factor of safety, he understood the dynamics of the underlying phenomenon and he knew the bounds of error of his model in reflecting the underlying phenomenon. Neither is true for financial markets. So applying a factor merely compounds the absurdity called VaR. In 2008, the Goldman Sachs CEO referred to several days of 25σ happenings, when even a single day should not occur if the modeling had any resemblance to reality. The terrible truth was that emperor VaR had no clothes on.

VaR, in short, was, is and never will be ready for prime time and needs to be junked- at least by credit analysts. But academically discredited techniques such as technical analysis still survive, and even create a bit of self fulfilling prophecy in the short run. Astrology has survived thousands of years by masquerading as a science. Sensible people know that just because an astrologer gazes at stars like an astronomer, it does not make astrology less of a mumbo jumbo. Sensible financial analysts know that just because VaR uses techniques from mathematics and physics, it does not make it less gibberish. Only in the climate controlled environment described by quantitative finance did VaR ever make sense. To raise VaR to an elevated status in a bank’s risk management pantheon is no different from Roman emperor Caligula elevating his horse to a consul.

Valuation of a Bank’s Investment Book

Fixed income instruments in a bank’s investment book need to be valued exactly like the way one values loans. Bonds are no different from loans- whether the bonds are corporate loans

or securitized products backed by retail loans. The only point a credit analyst must keep in mind is that because bonds are freely traded, during times of excesses or panic, the bonds tend to be overvalued or undervalued.

In the case of equity investments in entities other than subsidiaries, the valuation gets tricky. In case the acquisitions were made during a bear market one can value those acquisitions at current market value. If the acquisitions were made during a bull market, suitable scaling down of the values has to be done. Considerable judgment has to be used and we would not recommend blindly using any valuation method.

Sometimes, a bank might have in its investment portfolio, assets originated by it that were meant to have been sold to third party investors but continue to languish in the bank's investment book on account of not being able to find buyers. Also can be found in the investment book are investment units issued by the bank's asset management business. Historically, asset management businesses linked to middle men such as investment banks have underperformed on account of stuffing of portfolios with equity and debt paper underwritten by the middle man himself. Analysts should be very judicious in valuing these investment assets.

In their disclosures, banks sometimes mention the weighted average rating of their fixed income investment portfolio. Weighted average rating/credit quality measures are of limited use- what one needs is the distribution of ratings/credit quality metrics. For instance, if all the securities in the portfolio had a credit rating of A, the risk is very different from if a part of the portfolio was in AAA securities and part in BB to yield a weighted average credit rating of A.

Valuation of Financial Liabilities and adjustments to Shareholder Equity

IAS 39 permits banks to value their liabilities at market value. So, if a bank's credit quality falls, the value of the bank's liabilities in the market would fall. The bank is even allowed to book profits on account of the fall in value of its liabilities. As credit analysts analyzing a firm, we can't value the liabilities at anything other than face value. The only time one can assign a value to a liability less than face value and consider the profits from the fall in value is if the bank is able to take advantage of the fall in the value of its liabilities and buys back the liabilities in the secondary market. If the bank had the resources, it would surely take advantage of the fall in prices. And if it does not have the resources, any fall in value is of no use. It should merely be a source of worry for creditors if the market starts assigning a probability to the event that the liabilities would not be met in full.

Another argument is that one can assign a lesser value than face value to instruments that are subordinate to the instrument one is investing in. For example, if one is looking to invest in the Tier II instrument of a bank and is valuing the liabilities of the bank for credit analysis, one can assign the market value to the Tier I instruments. We would not recommend this approach for the analytical framework. The fall in the value of any liability below face value is not a promising sign, unless it is due to a general panic. So, we would value all liabilities, whether deposits, senior debt, Tier II debt, Tier III debt or Hybrid Tier I debt at face value.

The consolidated financials typically consolidate off balance sheet liabilities such as guarantees to wholly owned subsidiaries. But indirect off balance sheet liabilities must also be kept in mind. These include items such as providing liquidity support or partial guarantees for structures such as SIVs, which have the appearance of not being credit exposures, but actually become credit exposures when trouble hits the SIVs. That is because the banks setting up SIVs have a reputational exposure to those entities- not supporting such entities will cause the franchise value to take a beating.

If an analyst feels that the value of any asset (as discussed in all the sections above) is overstated, the adjustments to that value needs to be done by writing down the value of equity to balance the balance sheet. One must also remember to deduct from shareholder equity any profits shown on account of fall in the value of liabilities. It is post these adjustments that one has a clear idea of the assets and liabilities of a firm and one can assess if there is adequate cover for the creditor should operating earnings be insufficient for debt servicing. The rating agencies have their own methodology for rating banks- for details see Text Box: Rating Agency Methodology for Rating Banks

Text Box: Debt Capital Instruments of Banks

One of the off shoots of liberalization in the banking sector over the last two decades is the permission given for the use of long dated debt instruments as forms of bank capital. The increasing use of these instruments implied that banks and insurers had to set aside lesser and lesser amount of hard equity for absorbing losses emanating from credit, market and operational risk.

As per international banking norms (Basel II), banks are required to have a capital adequacy ratio of at least 8%. This capital could be of three forms- Tier 1, Tier 2 and Tier 3. Tier I capital consists of shareholders' equity and perpetual non cumulative preferred stock. The Tier 1 preferreds are debt instruments and in a bank's capital structure, they are senior only to equity. However, on instruction from the regulator, the coupons are deferrable and non cumulative. Typically, these instruments have a call option after the tenth anniversary of the issue. There is an unwritten compact with the investor that the preferreds would be called, unless prevented by the regulator from doing so. If a bank operates at the minimum capital adequacy required, at least 50% of its total capital must be Tier 1 capital. And typically, hard equity should constitute at least 85% of Tier 1 capital. Tier 2 capital is of two types- Upper Tier 2 and Lower Tier 2. Upper Tier 2 bonds are perpetual instruments that are senior only to

Tier 1 preferreds and equity. The coupon payment is deferrable, but unlike Tier 1 instruments, the interest payment is cumulative. These instruments typically have a maturity of 15 years after issue (in some countries they are perpetual) and are callable after 10 years from issue date. In the case of Lower Tier 2 debt, these instruments are junior only to senior debt and must have a residual maturity of at least 5 years. General provisions of a bank can also be a part of Tier 2 capital. Tier 3 instruments have a minimum tenure at issue of two years and rank pari-passu with Lower Tier 2 instruments. Tier 3 capital instruments can be used to support market risk in the trading book. What is of interest to the creditor is the quality of a bank's capital- too much reliance on debt instruments and less reliance on hard equity is not a happy state of affairs.

During the credit crisis of 2008, several banks broke their compact with the markets and did not call their capital instruments at the first call date. These institutions included big banks like Deutsche bank. RBS, tethering on the edge of bankruptcy and Canadian bank Toronto Dominion also did not call their capital instruments at the first opportunity. Spain's Santander was one of the few banks that took advantage of the crisis and bought back € 16 billion of bonds at below par value.

Since the completion of this book, Basel III norms are beginning to take shape. This norm would require phasing out of Tier I preferreds and their replacement with instruments that can be written down/converted to equity in times of crisis. The distinction between Upper and Lower Tier II would be phased out. Tier III instruments would be history

Text Box: Rating Agency Methodology for Rating Banks

At its core, with some minor variation, all the rating agencies use the CARMELS (capital adequacy, asset quality, resource raising ability, management, earnings potential, liquidity and systems and controls) framework for assessing the credit quality of debt instruments of a bank. For instance, Moody's calls a variation of this the seven pillar approach.

Fundamentally, there is nothing wrong with the framework. So, it was not the use of flawed

methodology that prevented the rating agencies from spotting trouble at banks in the run up to the credit crisis of 2007. Rather, the erroneous conclusions on bank credit quality occurred because they accepted as gospel truth whatever was stated in the balance sheet, a task, we are sure an untrained monkey could have performed admirably. For instance, consider the value of assets. We know that Level 3 assets were a sizeable chunk of a typical large western bank's balance sheet. Once the value of Level 3 assets was a big fraction of capital, there were only two honest courses open to the rating agencies. One, do a common sense based drilling down of the different classes of the bank's Level 3 assets. Then, based on the credit story of the borrowing entities and common sense, come up with an indicative value of the assets, which though only approximately correct, would not have been precisely wrong. Rating agencies were uniquely placed to do this because banks give rating agencies an inordinate amount of confidential information, should the agency ask for, something that is not available to the credit analyst sitting outside the portals of a rating agency. The second course open to the rating agency was to state that on account of the humongous quanta of Level 3 assets, they cannot estimate the value of the assets, and hence would not be able to provide a meaningful assessment of credit quality. Obviously, it is too much to expect a fee earning agency to plead ignorance and forego fees. So, critical analysis was the only viable option.

Once you can't get an accurate fix on the value of the assets, you can't calculate the capital adequacy ratio and you can't judge whether the capital available is sufficient to absorb losses. So, the stated capital adequacy ratios of banks like Citigroup in the fall of 2006 were quite meaningless. Next comes earnings. If you have not understood the dynamics of how earnings are realized, you can't estimate the quality of the earnings. You don't know if the earnings are recurrent or if they have been procured by pushing bad news into the future. The inadequacy of estimation of capital, earnings and assets flowed from the agencies' inability to

understand the credit story and assess the competence of bank senior management in minding the ship. So, though the CARMELS framework is an adequate one for assessing the credit quality of a bank, the framework assumes that the analyst using it is intellectually capable of fleshing up the framework using a bank's credit story.

Duration and Currency mismatch between Assets and Liabilities

A bank is in the business of borrowing short duration and lending long duration. During most periods, the upward sloping yield curve ensures profits from borrowing short and lending long. The steeper the yield curve, the more the profits. But if the bank takes on big duration bets- that is a big difference between the duration of assets and liabilities, it can easily put its solvency at risk. For most banks, the duration mismatch risk is not a terrible one because the weighted average duration of assets stays within acceptable levels. This is on account of the duration of long duration fixed rate mortgage products more than adequately compensated by the short duration of working capital financing and other short term products.

The risk of mismatch between duration of assets and liabilities really sits on the balance sheets of dedicated institutions such as mortgage financiers and primary dealers who fund the purchase of dated government securities with short term funds. The savings and loan crisis in the US provides an example of what can happen when you fund long term assets with short tenured liabilities. In 1989, 534 savings and loan institutions went belly up in the United States, as compared to 140 banks landing in the ditch in 2009. Of course, the total assets of bankrupt institutions in 2009 were more than the assets of failed institutions in 1989 because most savings and loan institutions were quite small.

The First Pennsylvania bank of the United States, which failed in 1980, was an example of an institution that went bust by buying long dated government securities with short term deposits. In 1980, the bank had \$8 billion of assets and \$5.3 billion of deposits. The bank

used the short term deposits to build a \$1 billion portfolio of government securities. About 50% of the securities had residual maturities more than 10 years and were yielding around 8%. But in 1980, short term rates in the United States climbed up sharply to 15.5%. That finished off the bank.

Currency mismatches between assets and liabilities of a bank, beyond miniscule levels, should be broadly unacceptable to creditors. Yes, once in a while it might make sense to borrow opportunistically in a foreign currency or deploy funds in foreign assets. But on most occasions, it is an unacceptable risk. When the Indonesian Rupiah sharply fell during the Asian crisis, many borrowers who had borrowed from foreign banks in foreign currencies defaulted and the banks had to write-off loans. Banks and non banks of the East Asian countries also got into trouble by contracting liabilities heavily in foreign currencies.

Liabilities emanating from Employee Benefits- Retirement & Healthcare

Pensions, health care and miscellaneous employee benefits, when not fully funded, should worry creditors everywhere, especially those of companies in developed countries. Such benefits have sunk or are on the verge of sinking many companies, causing considerable pain to lenders. Even in bankruptcy, these liabilities come back and haunt the creditors as shameless politicians are showing a propensity to steal from creditors to payoff unions. The recent bankruptcies of Chrysler and General Motors clearly imply that creditors would be wise to consider themselves subordinate to employee benefits when pricing loan recoveries in the event of default. Pension deficits have either destroyed big companies such as Trans World Airlines, Canadian telecom equipment maker Nortel Networks or are posing big problems as in the case of Germany's industrial conglomerate ThyssenKrupp.

Employee pensions are of two types- defined benefits (DB) and defined contributions (DC). A DB pension plan promises to pay retired employees a specific amount every month, linked

to their years of service and last drawn salary, irrespective of returns from the debt and equity markets. The employee has in this case passed on the investment return risk to the shareholders and perhaps the creditors of the employer. It is DB pensions, which was the norm in developed countries until recently that has caused profound damage to corporate balance sheets. Increasingly companies are moving away from the DB system to the DC system where the company contributes a certain amount to the employees' retirement account and does not worry about investment returns as that risk is passed on to the employee. In many countries the company does not get involved in employee pensions- so that is one less risk that shareholders and creditors need to worry about.

Despite the fact that the pernicious DB system is on its way out, its potential for harm to creditors is going to be around for some more time. In a technical paper by actuarial firm Watson Wyatt in November 2007, the firm estimated that even if all the UK DB schemes were closed, DB liabilities would show a growing trend till 2017, reaching a maximum of 39% above the liabilities of 2007, and returning to current levels around 2035. In early 2009, UK corporate pensions had a £220 billion shortfall forcing companies such as British Telecom to cut their dividend payout. Around the same time, the pension watchdog claimed that the UK's 7000 defined benefit schemes linked to final salary had a deficit of £240 billion.

The situation is as alarming in the United States. There is a good chance that companies unable to fund their pensions in a globalized and competitive environment, will file for bankruptcy and dump their pension liabilities on to the government guarantor of pensions -the Pension Benefit Guaranty Corporation (PBGC). The PBGC, which funds itself by charging a premium to the companies whose pensions it guarantees, had a surplus of \$10 billion in December 2001. By the end of 2008, this got converted into a deficit, which further tripled in the first 6 months of 2009 to \$ 33.5 billion. Obviously, this expanded deficit should

be a part of the consolidated financials for any analysis of the United States' sovereign credit rating.

Pension assessment before detailed Credit Analysis

Before doing a full fledged appraisal of a company's assets and liabilities, the credit analyst should look at the pension deficit to ponder if it is worth looking at the company in greater detail. In most countries, the accounting standards require the deficit in pension funding to be stated explicitly in the liabilities column (see Accounting Box: Estimating Non Current Employee Liabilities). The stated numbers should not be accepted as gospel truth because several assumptions go behind arriving at the value of pension assets, pension liabilities and hence the pension deficit. These include:

- Actuarial estimation of the gross pension liabilities. This is estimated by actuaries and analysts would do well to take those values at face value, because there is very little extra value they can add by subjecting those values to sensitivity analysis. For instance, if one thinks that longevity is going to increase causing the stated liabilities to be understated, it should not perturb the analyst as those liabilities would become evident many moons down the line, before which a creditor has adequate time to get out. Yes, if you are going to invest in the 30-year bonds of a corporation, it should matter, but investing in a 30 year bond (other than a sovereign bond in the currency of the issuing country) falls in the domain outside credit investing. Anything beyond 10 years, for most borrowers, is outside the credit realm.
- Investment returns assumed from the assets kept aside for employee benefits. Companies which are using aggressively high investment return assumptions can get caught out fairly soon by regulators. The regulators might force the company to restate its pension hole in the balance sheet, which might cause the balance sheet to look shocking. Obviously what is a sensible return will vary from country to country. It is better to just get the current fair value

of the assets invested in the pension. If one asks the company about the under funded nature of its pension liabilities, the company might snap back that high returns will ensue in future to wipe out the hole. It is better not to go down that lane. After knowing the current market value of the pension assets, an analyst needs to get the split between debt and equity in the pension fund. Then he can use his own judgment as to whether current valuations of the assets are way out of whack because of unusual market conditions. We fully appreciate the fact that long dated assets should not be seen too much through the prism of current market values. But unless you are witnessing severe market dislocations as during the fall on 2008, they provide a starting point, beyond which minor tinkering should suffice.

Surrendering to the Unions killed General Motors in 1990 (not 2009)

Though General Motors (GM), founded in 1908 reached the peak of its glory in the late 1950s, the company's downfall started since the strike of 1945-46, when the management, under duress from successive Democratic Party led governments, was forced to concede the unreasonable demands of the United Automobile Workers (UAW) union. Though there was less labor unrest in the following decade, unreasonable principles, which would erode the corporation's long term health had been conceded. Because S&P went by the historical prowess of GM and not its worsening unfunded healthcare and pension liabilities and the deteriorating quality of its products, it continued to rate GM triple-A till 1981. The agency had an investment grade rating on the company for a further 24 years, when the signals of impending doom had long been confirmed.

Creditors had no business being in General Motors post the total surrender to unions in the 1990s. And for those who did, the saying of Thomas Fuller comes to mind- "if you leap into a well, providence is not bound to fetch you out". The company's pact with the unions required it to pay 95% of base salary to idle workers. This and other terrible concessions increased the company's fixed costs appreciably. The company, to divide this deadweight

cost amongst the maximum possible number of units, kept production at unreasonably high levels. Sales of these units could be achieved only through costly dealer incentives, cheap credit and heavily discounted sales to fleet operators. This killed the residual value of GM's cars and damaged the brand permanently. A proactive credit analyst would have recommended getting out of the GM credit in the early 1990s and not waited for the impending poor earnings and weakening capital structure to follow. Throughout the 1990s GM had a single A credit rating from S&P. The transfer of value from the corporation to the unions and burgeoning unfunded medical and pension liabilities were all too evident. At the end of 2008, GM's pension plan was under funded to the extent of \$13 billion. Unfunded healthcare costs were extra. Bankruptcy put this once proud company out of misery on June 1, 2009. The single most important message for the credit analyst is to know when to get away from companies which have adverse employee relationships. These adversarial relationships result in managements trying to pass the problems to another day by agreeing to unsound employee benefits that would remain unfunded in the near future.

Greedy Workers and Executives sink Bethlehem Steel

Carol Loomis' account of the demise of Bethlehem Steel in a 2004 issue of Fortune Magazine is a thriller of how a great company went to the dogs thanks to serial mismanagement. Chief among the reasons for the company's demise were its prohibitive employee benefits – first, current payments to greedy executives and then the promise of generous retiral payouts to workers, sometime in the distant future when the executives did not expect to be around to face the music.

Bethlehem Steel, which filed for bankruptcy in 2001, was founded in 1904. The company had built US national landmarks such as the Golden Gate Bridge. In 1943, at the peak of the Second World War, the company's CEO promised the government to build one ship a day and went on to improve on that promise. At its peak during the war, the company had 300,000

employees. When it filed for bankruptcy, it had only 12,000 workers at its plant near Philadelphia.

Signs of the management losing control over the company's strategy were evident by the mid 1960s. For 16 years from 1958, the company's return on equity was a full 400 basis points lower than other Fortune 500 companies. Its average return to shareholders of 7.5% was lower than its cost of capital. Greedy executives were rewarding themselves generously at great cost to shareholders and creditors (so creditors who came of age during the "decade of greedy bankers", starting from the mid 1990s might be surprised at such rampant greed during the golden age of American industry). In the Business Week's Survey of pay for 1957, 9 of the 12 top paid executives belonged to Bethlehem Steel. While executive costs were spinning out of control, the company was forced to accede to the greed of the United Steelworkers of America. Wages of steel workers went up by 900% in between 1954 to 2003, a period during which steel prices went up by a mere 220%. While management was giving itself cash goodies, it promised the workers non cash benefits such as enhanced healthcare and pension benefits, which did not have an immediate impact on the income statement. Lax accounting standards prevalent then allowed this charade. So, pension plans were funded, but not fully, while healthcare plans were completely unfunded.

Because the greedy executives were focused on short term returns, they did not pay attention to the fact that they could have lowered their tax bills by deducting expenses for funding the pension plans. Competitors such as US Steel aggressively funded their pension plan to lower their tax bills- but not Bethlehem Steel.

Instead of funding their pension promises, the company went for a big debt funded capital expenditure program. One wonders why the creditors dug themselves deeper into this bottomless hole. The consequences started being felt from 1977. During that year, the company took a \$ 791 million non recurring charge for plant closures- plunging the company

to its first loss since 1933. \$ 483 million of this was for pension costs for the terminated employees. Every time Bethlehem Steel shut a plant, it accelerated retirement payouts for long time workers and shutdown benefits, which put more burden on the pension plan. In the 1980's headcount was down to 35,000. By 2001, there were 120,000 retirees supported by 13,000 active workers. By the time the Pension Benefit Guaranty Corporation (PBGC) took over the company's pension obligations after bankruptcy, it had ballooned to \$ 4.3 billion. This ignored health care benefits promised as these were effectively written off. Wilbur Ross' International Steel Corp bought the company from bankruptcy without the liabilities that sank the company.

The lessons for creditors from the Bethlehem Steel episode were - a) Beware of companies where executives pay themselves way out of industry standards- chances are they do not have the long term interests of the company at heart and creditors might be left holding the basket. b) Unless you have a clear idea of unfunded or under funded employee benefits, do not even think of participating in the company's destiny as a long term lender.

Was IBM a single-A Credit in 2009?

The history of IBM is too illustrious to need repeating. However, at the end of 2008, the company's balance sheet was positively shocking when viewed through the eyes of a creditor. On a balance sheet size of \$ 109 billion, the company merely had a shareholder equity base of \$13.5 billion. Repeated share buy backs had enfeebled the equity foundation of the company. \$ 26 billion was deployed in financing of customers. For its US pension assets, the company assumed future returns of 8%, when 10 year treasuries were yielding around 2.5%. Even with that fantasy like investment return assumption, the hole under its pension head amounted to \$ 19 billion. The total debt outstanding at the end of 2008 was \$ 33.9 billion (to be fair, the company had almost \$12 billion of cash). So, despite the company's profitability (\$12.3 billion in 2008), its crazily leveraged balance sheet should startle a creditor. IBM's creditor

has to base his analysis on likely continuance of current profitability and the quality of financing receivables being good, because, should the company run into problems, the recoveries are like to be awful.

Credit Financing of Japan Airlines in 2009 did not make sense without a Pension Solution

Japan's national carrier, Japan Airlines is a horrible company in a horrible sector. The airline started operations in 1951, giving it sufficient number of years to accrue a pension problem. It was privatized in 1987, but politicians continued to meddle in the functioning of the airline. They forced the airline to operate in unviable sectors so that there could be flights to their political constituencies. In the case of domestic operations, besides operating in unviable sectors, the airline industry was inherently at a disadvantage competing against a very efficient high speed railway system. To compound its woes, its biggest domestic competitor, All Nippon Airways was less incompetent than it.

By the middle of 2009 it became clear that Japan Airlines could not push its problems to another day. From 2001, the company had received three bailouts and was on course to receiving a fourth one. Its liabilities exceeded its assets by a considerable amount. The outstanding debt was \$ 15 billion. Its biggest creditor was state owned Development Bank of Japan. But the big private sector banks, Mitsubishi UFJ, Mizuho and Sumitomo Mitsui also had huge exposures to the company. There was talk of American airlines such as Delta and American buying stake in Japan airlines to take advantage of Japan Airlines' extensive network across Asia. Another possible solution was existing lenders swapping their debt for equity. Irrespective of what shape the restructuring takes, creditors should not get involved unless the more than \$3.4 billion pension hole on Japan Airlines' balance sheet was filled. With Japan having a new government that owes a lot to the unions, it is unlikely that this liability will be cut or restructured beyond a point. So, it continues to hang like Damocles' sword over the airlines' head.

Accounting Box: Estimating Non Current Employee Liabilities

IAS 19 on Employee Benefits provides analysts with guidance on how expenses and liabilities from such a source have to be accounted for. Any understatement of future benefits already promised to employees implies overstatement of revenues on account of understated expenses. There are of course no problems on account of current payments such as wages, paid annual leave etc. Problems and disputes occur over post employment benefits such as pensions, post employment health care and termination benefits. Unpaid expenses from the benefits accrued in the current period are recorded as liabilities in the balance sheet.

The most important issues for an analyst are the actuarial assumptions that are used for estimating future liabilities. For instance, for the whole decade from 1999, many companies had been assuming that their pension assets would yield more than 8% annual returns. For the whole decade, in reality, the S&P 500 yielded a negative return. When the optimistic assumption is followed by several years of the forecast not coming true, the compounding effect ensures that the liability becomes a monster. At some point, some company assets such as real estate, which unsecured creditors might have been banking on for recoveries in case the company got into trouble, could be transferred to the pension fund.

Another area where assumptions can haunt a company is the discount rate used to value pension liabilities. Using government bond yield is reasonably conservative, but if pension liabilities are a significant part of a company's liabilities, credit analysts would do well to calculate the liabilities under a scenario of lower government bond yields (in a country like Japan with high savings, in spite of high government debt, yields on government securities might be temporarily low- that might not persist forever). Other actuarial assumptions such as estimated future salary increases and any other estimates must pass the test of reasonableness and conservatism. Close attention should be paid to any actuarial gains and losses reported in the financial statements.

An extension of IAS 19 is IAS 26- Accounting and Reporting by Retirement Benefit Plans. Most new companies have defined contribution pension plans, where the employees take the risk of investment returns not yielding what was expected. The credit analyst should be more worried about defined benefit plans of the older companies, which has driven several of them into bankruptcy. The analyst should also check the frequency of actuarial valuations.

Valuation of Assets and Liabilities of an Insurance Company

The procedure for valuing insurance company assets is similar to that for valuing bank assets. Of course, the composition of the asset side of a bank's balance sheet is somewhat different from that of an insurance company's balance sheet (see Text Box: The Insurance Business in Brief). The liability side of an insurance company is mostly comprised of technical reserves for paying off claims and is of an actuarial nature as opposed to the more deterministic nature of a bank's liabilities.

Insurance companies are not big borrowers in the debt market. Their core operations, if run properly, generate float cash flows that need to be invested prudently and sensibly. In fact, one needs to be wary of insurance companies with anything more than a negligible amount of debt on their balance sheet, because it either reflects a desire of management to secure leveraged returns or the fact that the management has an orientation towards the M&A circuit. The debt does not include the debt like capital instruments such as Tier I and Tier II bonds.

What then is the role of credit analysis in an insurance company? The role is to assess the insurance company as a counterparty for various transactions such as insurance services. A corporate, before it offloads its insurance risk onto an insurer needs to assess the ability of the insurer in making good its obligations should the need arise. Likewise, an insurance company needs to assess the counterparty credit risk of a reinsurer before entering into a

reinsurance contract- else the reinsurance premium would have been spent in vain and credit support would not be unavailable when the insurance company needs it.

When assessing an insurance company's counterparty risk, if you want to be proactive rather than reactive, you are better off following the method given below rather than paying heed to the rating agencies. The wisdom on insurance company operations gleaned from Berkshire Hathaway's annual reports is very useful for understanding this business. Credit rating agencies have a very dangerous function in the working of insurance companies, which insurance and reinsurance companies and their counterparties would do well to remove in their collective interest- the maintenance of a particular minimum level of credit rating from an agency. If the rating fell below that, it would cause an insurance contract to become void. There could be the contractual requirement for the insurance company to return unearned premiums. This merely serves to drive the insurance company further into trouble.

While paying lip service to a number of factors, some rating agencies (particularly S&P) use mechanical risk models to assess the counterparty credit risk of insurance companies.

Obviously, these models, not being intelligent, will not be able to capture the narration and story of what is going on beneath the numbers. The failure to grasp the narration ("the credit story") is the cause of such well known rating failures as AIG and monoline insurers in 2007-2008.

Asset Valuation

The first step in the assessment of an insurance company is valuing its assets. When this is compared with current value of liabilities, it helps to assess if the company is currently solvent. Post the valuation of assets and liabilities, one needs to assess if current reported earnings require adjustment. The likelihood of future earnings being adequate to ensure continued solvency also needs to be evaluated.

The three main types of investments of an insurance company include fixed income securities (including those that look and feel like equity such as junior tranches of securitization transactions and ultra low quality bonds), equity securities and real estate assets. Since the insurance counterparty does not get any upside in the insurance companies' investments (unless it is a with profit life insurance policy), it makes sense to be involved only with insurance companies that invest most of their assets in high quality assets.

Of course, persistently low earnings on assets is also not in the interests of the counterparty- it might force a company to do rash things on the underwriting side to boost short term profits, while putting long term solvency at peril. But it is usually poor underwriting results that drive an insurance company to do foolish things on the investment side- so persistently poor underwriting results should worry policy holders more. Japan's Yamato Life Insurance Company, a company founded in 1911 filed for bankruptcy in 2008. The company had 30% of its investment portfolio in alternate assets- a surefire recipe for disaster. Post bankruptcy, the company was taken over by Prudential Financial. Japan's Life Insurance Policy Holder Protection Group had to provide support to wipe out the company's negative networth. Weird stuff like alternate investments should not be more than a few percentage points of an insurer's portfolio, unless the insurer is substantially overcapitalized.

Equity holdings can be high only if the company has a track record of sound underwriting such as most insurance companies of the Berkshire Hathaway stable. When a company is running a sound underwriting book, there is low likelihood of policy holders canceling their policies (which result in lesser premium flow and claims that would have to be settled by liquidating assets). For most insurance companies, this criterion is not satisfied- so they should have most of their portfolio in bonds. Real estate assets, whether in the equity form such as REIT investments or in the debt format like CMBS also make sense only if purchased

after a substantial fall in asset values. Real estate assets bought during other periods should be fairly low.

One does not like outright bloomers on the asset side. An insurance company investing in a group company is not a happy state of affairs. For instance, Korean insurance company Samsung Life Insurance, investing in Samsung Electronics is not a welcome occurrence for counterparties.

Reliance Corp Holdings' Investments in Junk Bonds finishes off an Insurance Company

The Steinberg family had run property and casualty insurance company Reliance (a company which traces its roots to 1817) since 1968. The company filed for bankruptcy in 2001. Saul Steinberg acquired Reliance through a leveraged buyout. He then used Reliance's cash flows as a base for corporate raiding. Steinberg took Reliance private in 1986 and took it public again. Investors were available, giving testimony to the fact that there is one born every minute. Many factors were responsible for Reliance's ultimate demise- all of which a counterparty to an insurance company must assess.

Firstly, the company was involved in workers' compensation policies at extremely low rates (any insurance company offering rates lower than market rates must have a very clear explanation on how it expects to make money). Since the losses hit much later, the premium cash flows provided Saul Steinberg with cash for his leveraged buyout activities. When the pool started getting hit by losses, the reserves vanished really fast. Of course, when customers of an insurance company spy early signs of trouble, they have a tendency to accelerate their demands. Secondly Saul Steinberg used the company to support a lavish lifestyle. Cash flows were diverted for heavy dividend payouts, which were necessary for the king-size life style. Thirdly, the company's asset book in the 1980s was simply shocking for

a company that was holding other's people's money temporarily before paying off insurance losses. During the 1980s, Reliance became a big client of junk bond issuer Drexel Burnham. The whole structure of the Reliance Group was very interesting. Reliance Group Holdings owned 100% of Reliance Financial Services, which in turn owned 100% of Reliance Insurance. In 1990, Reliance Insurance paid \$ 140 million in dividends to its parent. The holding company, in September 1991, had \$ 990 million debt. The only source of debt servicing was the dividends received from Reliance Insurance. In 1988, 45% of Reliance Insurance's fixed income investment portfolio was made up of junk bonds or unrated securities. As the trouble began in the junk bond market, Reliance gradually brought the junk bond portfolio down to 20% of the fixed income portfolio. Another horrific aspect of Reliance Insurance's investment portfolio in 1991 was that it held \$ 68 million par value of bonds of Reliance Group Holdings. Reliance Insurance Company, at that time owned 34.9% of Zenith National Insurance, which in turn owned 23.88% of Reliance Insurance Company's preferred shares. These cross transactions should have been the final signal for policy holders and debt holders to scoot- funnily, the company survived for a whole decade after this.

Rating agencies, as usual, were behind the curve. AM Best downgraded Reliance Insurance from A+ in 1986 to A- in 1991. The company had the same rating on till June 2000, when AM Best rapidly downgraded the company to C. With so many red flags visible for more than two decades before ultimate bankruptcy, it is a real surprise that debt investors and policy holders felt comfortable with the ride.

AIG's Investment Strategies and Consolidated Financials

Insurance is an exception to our broad premise that you need to look at the consolidated financials of a group. Since insurance companies are regulated by different regulators at the

operating company level, a policy holder needs to look at the financials of the operating company only. Only a creditor to an insurance holding company, holding equity stakes in various insurance companies needs to look at the holding company level. Different regulators, regulating different entities would not permit the flow of cash from one operating company to another, save in the form of dividends after having complied with all solvency requirements.

Most of the insurance companies of the AIG group are fairly sound despite the parent being under financial strain due to the activities of the company AIG Financial Products. AIG Financial Products, by writing foolish credit default swaps put at peril shareholders and bondholders of the parent company, but not the policy holders. At the operating company level, if you are a policy holder in a sound company of the AIG group, you would not have been affected even if AIG was not bailed out. All that would have happened (and might still happen), is the ownership of the operating company would shift from AIG to another company that would have bought AIG's shareholding. In this case, the policyholders get exposed to the risk of the operating policies of the new equity owners- what type of assets they would invest in, how conservative their loss reserving is, what their reinsurance policies are etc. But insurance regulators would not permit an unsound company from buying out another insurance company (unless they were busy watching porn during working hours like the US SEC employees).

Approximate estimation of Required Insurance Reserves

Getting an approximate fix of the insurance liabilities, post the estimation of assets would help an insurance counterparty assess if his insurance contract is worth the paper it is written on and help creditors at the holding company level assess their likelihood of being repaid. One might argue that the very fact that the regulator has not shuttered the doors of the company implies it is solvent, but there is a possibility that the regulators are going by the

company assessment of asset values, particularly the weirder types of assets. Also, the regulator might be going by the company's estimation of loss reserves which might prove to be inadequate. Warren Buffet points out in his annual reports that investors and policyholders should be wary of insurance companies which use words like "reserve strengthening" too often. True, insurance reserves by their stochastic nature cannot be correctly estimated beyond a point, but the presented reserves should have a 50% chance of being higher than required to pay off claims and a 50% chance of being lower (but not too much lower). So, "reserve strengthening" should happen 50% of the time and "reserve weakening" should happen 50% of the time.

Unfortunately, that is not the case and underestimation of reserves in order to overstate earnings is a fact of life. When a company underestimates its reserves, it effectively causes it to understate the cost of doing business. This in turn results in wrong estimation of the premium required to be charged for future business. So, not only does underestimating reserves threaten the "here and now", it also puts a question mark on the company's future businesses.

Actuaries use several techniques to estimate loss reserves. The problems with stated reserves have nothing to do with the statistically sound methods of reserving which have stood the test of time, but everything to do with the fact that actuaries are frail human beings like everyone else, who would not bite the hand of the company management that feeds them. Techniques for loss reserving include Loss Ratio method, Loss Development method, Bornhuetter Fergusson (a combination of the above two methods) and several other methods. A credit analyst needs to look only at the loss ratio method - which is fairly simple besides being sound in its statistical underpinning.

In the Loss Ratio Method, for every line of insurance business that a company writes, one calculates loss ratios for each year of operation. Let us say, Auto Third Party Liability is one

of the insurance lines a company underwrites. Also, let's say, typically these claims are fully settled in four years after the policies are written. In that case, loss experience for any year older than four years is not likely to see further claim payouts- the claims are likely to have been fully settled. Let us say, 10 years ago, in a single calendar, the company got \$ 100 million in premiums from this line of business. On the policies written that year, the company paid \$75 million in claims (the "loss ratio" is 75%) and incurred expenses for settling the claims of \$ 20 million ("expense ratio" of 20%). So, the total cost to the company, the sum of the loss ratio and the expense ratio called the combined ratio had a value of 95%.

Let us say, nothing has changed in 10 years, in terms of inflation in cost of settling the claims (juries not handing out higher settlements, wages not going up etc), and this year the company brought in \$200 million in premium in this line of business. Assume further, that the company did not cut its premiums or increase the premiums during the last 10 years. In that case, based on the experience 10 years ago, you can estimate that the company would ultimately pay out \$ 190 million despite the fact that it has paid out only \$ 40 million so far. Let us say, the company created reserves of \$ 100 million for the policies written this year, giving a total loss expectation by the company of \$140 million (\$40 million paid plus \$100 million in reserves). Clearly this is below what commonsense says the reserves should be- the reserves for the current year should be \$150 million so that there are enough resources for the payout over the next 3 years. In this case, the company has under reserved by \$ 50 million. Since claims take 4 years to settle, the claims of the previous three years would not have fully developed and must be estimated in the above fashion.

One weakness in our simplistic calculations above is we considered the loss ratio of a single year 10 years ago as sacrosanct – obviously the combined ratio every year is not going to be precisely 95%. So, one should look at the combined ratios for all the fully developed years

and take the average of those combined ratios for use in estimating reserves in the non- fully settled years. The variation in the combined ratios of the fully settled years provides the analyst with some idea on the volatility of the business. For instance, combined ratios of super catastrophic insurance policies can be very low in years of few disasters and high in other years – the premium charged every year should cover loss expectations over a cycle. Likewise loss ratios of areas such as product liabilities can be very volatile and take a long time to settle (“long tailed businesses”).

Another weakness of our simple loss ratio method was it failed to incorporate premium increases and decreases. If premium is cut by an insurer due to competitive pressures, claims are not going to fall, and the combined ratio would go up. And if an insurer cuts premium in isolation he is likely to capture a lot of loss making business from competitors which is likely to accelerate his path to ruin. Since, in the short run, this translates into increased cash flow from premiums, it masks the insolvency of the company. Adjustments to loss ratio expectation should also be made for increased expenses over time, and other factors that change over time. When this reserve estimation is summed over all lines of businesses the reserves that the company needs for meeting all future claims can be estimated. The necessary reserves when compared with actual reserves tells the analyst if the company is correctly reserving and if it is under reserving, the analyst needs to know if the equity cushion is adequate. Remember, the equity cushion is not only required for policies written earlier and which have been under reserved, but also for future policies where the premium is undercharged.

Getting loss ratio at the group level, without knowing how the business mix has changed makes it less useful. Loss ratio analysis has to be done business by business. The dynamics of the different lines of business are different. Credit analysts, who need to be approximately right than precisely wrong, should have no time for fancy techniques for estimating loss

reserves. This calls for dollops of common sense and some basic mathematics. The analyst has a problem when a company enters a new line of business, whose loss experience is not available. Counterparties should be wary of companies that are growing rapidly in a new line of business- collecting premiums by making promises of future payment of losses without knowing whether the premiums charged are adequate is a risky proposition.

In the life insurance business, there is less ability to under reserve since this business is more predictable and less volatile. Life insurance policies come in various shapes- the analyst needs to look at each class of business separately.

Relationship between Insurance Assets, Liabilities and their Liquidity

Insurance companies get into trouble when they, instead of treating the two sides of the insurance balance sheet separately, start pricing premiums based on investment return expectation and not based on loss experience. Only in very rare circumstances does that make sense. For instance, in the United States in the early 1980s, when interest rates were very high, the high return from risk free securities made it sensible to acquire as much premiums as possible, even for a small underwriting loss, so as to get the high investment returns risk free. The small losses from the underwriting side can be compensated by high returns on the investment side.

The above example does not hold when the asset income is secured by taking huge asset side investment risk. For instance, life insurance company First Executive sold “vanishing premium” life insurance policies. The company claimed that the premium would be invested in such a manner that the policy holder would not have to pay premiums in later years. Junk bonds constituted two-third of the firm’s assets, whose high yield was supposedly to make premium requirements go away. Executive Life was actually an innovative firm- it had

introduced retirement annuities in 1975. Its foray into junk bonds and mis-pricing of premiums based on asset returns killed the company in 1991.

Another way life insurers get into trouble is by promising their policyholders a guaranteed minimum return. When interest rates fall and high yields can be secured only by taking on high risk, the insurance company runs aground. Equitable Life, a UK based entity ran into trouble promising its policy holders a guaranteed investment return.

Text Box: The Insurance Business in brief

An insurance transaction commences when an individual or company (the “insured”) seeks to offload some risk on to an insurance company by paying a “premium”, so that the individual or company is not put in position of financial distress should the insured risk actually materialize. Insurance companies are broadly of two types- life insurance and non-life insurance.

Life insurance companies, besides insuring the life of the insured are involved in activities such as health insurance and pensions. The tenure of each such contract can be quite long. Every unit of premium collected by the company is not only used for paying out claims when the insured event occurs but also for creating reserves for future payouts. For example, consider a single premium life insurance contract where the insurance company receives a single premium payment for insuring a life for 20 years. Let us say the company has written 1000 such policies. Obviously, it cannot, in its income statement, show as revenue the entire premium collected from the 1000 policies. The premiums need to be earned over 20 years. The risk is not uniformly spread over the 20 years. As time passes, the risk of mortality keeps increasing as the insured grow older. So, in the first year, only a small portion of the premium collected is “earned” as only a small portion of the risks assumed by the insurance company has expired. On the expense side, the company has to consider the cost of the

claims paid as well as the expenses required for keeping the lights on at the insurance company. Because there is a risk that the number of claims do not go as per the script of mortality tables (i.e mortality tables might imply a certain probability of a 35 year old meeting his creator the following year, but the actual death rate of 35 year olds insured by the company might be higher), an insurance company needs to keep capital to cushion the policy holders against adverse loss experienced by the insurance company. The minimum amount of capital required is set by national regulators. To run a viable insurance operation, the company must price its premiums such that there is adequate cash for paying claims, for running its operations and for ensuring that the providers of capital get an adequate return. If the company is not pricing its premium thus, at some point it will not have adequate cash to pay the different claimants.

Because the premium is paid upfront but the claims have to be paid over a twenty year period, the insurance company can invest the money in various asset classes to secure returns. In some cases, the gains accruing from the investments need to be shared with policy holders. If policy holders do not get a share in the pie, it is the prerogative of the insurer to invest in assets as he pleases. This exposes the policy holders to the risk that the investment assets would have to be written down in value and adequate cash might not be available to meet claim payments. Depending on the latitude permitted by regulators on the investment front, the insured should seek insurance companies which have adequate capital, not only for meeting unexpectedly high loss payments, but also for cushioning the policyholders from investments gone awry.

Non Life insurance companies, also called property and casualty (P&C) insurers, cover the risk of damage to property such as homes, factories, offices and cars as well as liabilities such as compensation to workers on account of accidents at work and liabilities such as medical malpractice. Again, premiums are collected and earned over a period of time. An interesting

notion used by P&C insurers is the concept of an “accident year”. Accident year refers to all accidents that occur to the insured in that year and result in claims. In the case of some lines of business such as product liability insurance to pharmaceutical companies, the insured themselves might not be aware for a long time about the damage their products are causing their customers. Let us say, a pharmaceutical company took out a 1 year product liability contract on January 1, 2001 to cover the risk of financial losses in case any of its products cause health problems to customers. The customers of the pharmaceutical company using product X became aware of the health problems caused by the drug in 2005 and sue the pharma company for damages. The pharma company in turn notifies the insurance company of the claim. Despite the fact that the claim was made 3 years after the policy expired, the insurance company is liable to pay because the “accident” occurred in 2001, when the policy was current. 2005, in insurance parlance is the “Reported Year” while 2001 was the “Accident Year”. An extreme example of this type of delay in claiming damages occurred in losses connected with the harmful effects of the use of asbestos. Several decades elapsed since the policies expired before the damage lawsuits were filed.

A ratio used by P&C insurers to judge the efficacy of pricing of their policies of a particular business line is the “Loss Ratio”. It is defined, for a particular Accident Year, as the ratio of “claims incurred” for that accident year to the premiums earned. Notice, the item in the numerator is “claims incurred” and not “claims paid”. That is the cue to explain another aspect of the insurance business. The moment a claim occurs, say from a hurricane, the claims adjuster in an insurance company, from his past experience, immediately realizes that the total losses from the claim would not be limited to what is paid immediately to the insured but additional payouts would be required once the homeowner whose property is covered realizes that the damages are more than the claims he had originally filed for. For the future claims, the claims adjuster creates a reserve, which is gradually brought down to zero

as more payments are made. The reserves could also be revised upwards if the adjuster, on getting more information about the claim, feels the claim would ultimately settle for a higher amount. So, for a particular claim that has not yet been settled, the claims incurred on balance sheet date is the sum of the amount paid to date and the reserves outstanding on that date. The reserves sit on the liability side of an insurer's balance sheet and form part of "technical reserves". Unearned premiums also form a part of the "technical reserves". As mentioned earlier, not all claims are reported immediately to the insurer. From the claim development pattern of prior accident years, whose claims have been fully settled, actuaries estimate the amount of reserves required for claims that have been incurred but not yet reported. The reserve created for such unreported claims is, in insurance parlance, referred to as "incurred but not reported reserves" (IBNR reserves). In lines of businesses such as product liability, IBNR can form a substantial chunk of total reserves as claims take a long while before they are adequately reported. The lines of business where reserves run off quickly to zero as claims are paid off are referred to as "short tailed businesses". The liability lines of businesses take a long time to run-off and are referred to as "long tailed business"

A third type of insurance company is the reinsurance company. It is the insurer of insurance companies. Primary insurers, who deal with individuals and companies, might choose to offload a portion of their risks to reinsurance companies. The primary insurer is said to have ceded risk to the reinsurer. Hence the primary insurer is also called the cedant. The motive is risk management. A primary insurer might not like the exposure emanating from catastrophic losses and might want to offload losses beyond a threshold to the reinsurer, who might be better suited to handle "low frequency, high severity" catastrophic events. Of course, the primary insurer must worry about the credit standing of the reinsurer – else the premiums paid in anticipation of support would have been in vain and the receivables from

the reinsurer would be uncollectible. We feel that separate rules need to be framed for reinsurance exposures to reinsurance companies where the primary insurance company has substantial shareholding (say more than 25%). We would recommend not treating such reinsurance as reinsurance for accounting purposes but pretend as if the company has set aside the premium it paid to the reinsurer for meeting future liabilities.

A reinsurance contract is one where the reinsurer indemnifies the ceding company against all or portions of the primary insurance risks taken by the ceding company. There are two basic types of reinsurance contracts- Treaty and Facultative. In Treaty reinsurance, the ceding company is contractually required to cede and the reinsurer bound to assume a specified portion of risks from a line of business (say motor liability). The reinsurer does not evaluate each risk assumed by the ceding company. He merely reviews the underwriting policy of the ceding company and estimates the reinsurance premium. In Facultative reinsurance, reinsurance premium is negotiated for each reinsurance contract. Facultative reinsurance is purchased by ceding companies for contracts not covered by Treaty reinsurance. Both Treaty and Facultative insurance can be written on a proportional basis or a non proportional basis. In a proportional reinsurance contract, the ceding company pays a pre-determined premium to protect itself against a certain percentage of losses. Excess of Loss (XOL) reinsurance cover is the most important type of non proportional reinsurance. In this contract, the reinsurance company protects the ceding company from losses exceeding a certain pre-determined amount emanating from a line of business or from a certain event such as a catastrophe.

To acquire new multi year insurance business, an insurance company incurs acquisition costs. IFRS 4, "Insurance Contracts" requires these costs to be expensed as soon as incurred. A portion of the premium which represents recovery of the acquisition costs can be booked as revenue. In the case of US accounting standards, the acquisition costs are recorded as a

liability in the balance sheet under the head “deferred acquisition costs” and amortized over the life of the contract.

Reinsurance Analysis- Swiss Re versus Munich Re

Munich Re and Swiss Re are two of the largest reinsurance companies. Insurance companies rely on the creditworthiness of the reinsurers for timely receipt of reinsurance claims. In fact paying reinsurance premiums to a non creditworthy reinsurance firm is not money well spent. Reinsurance is a paradoxical transaction for an insurer. If several insurers get attractive premium quotes from a reinsurer, that is less than their expected loss, for a while, it seems that the primary insurance company is getting a good deal. But writing uneconomical reinsurance policies puts at risk the solvency of the reinsurer, reducing the likelihood of servicing of reinsurance claims. So, insurance companies and reinsurance companies are part of the same chain, one cannot profit at the cost of the other over the long term. Japanese insurance company Taisei Marine & Fire filed for court protection because the company’s net exposure (post reinsurance) from the 9/11 events was 1.5 times its capital base. It had a huge reinsurance exposure to a single US aviation reinsurance agency.

Back to Munich Re versus Swiss Re and the virtues one would like in a reinsurer. Firstly, you don’t want your reinsurance company to have an adventurous investment policy. Swiss Re has had an adventurous policy for some time and it culminated in the company having huge losses from assets linked to the US subprime crisis. As at 31st December 2008, the company reported that most of its assets were in Level 2 and Level 3 categories (Level 2 assets have some observable inputs while Level 3 valuation is linked to the potency of the stuff you smoked). Munich Re had a fairly conventional portfolio- almost 63% in traditional fixed income, 23% in loans, about 2% in real estate, about 3% in equity and miscellaneous assets comprising the rest. The second thing you don’t want your reinsurer to do is getting far away from his core competencies. Swiss Re strayed deep into credit products while

Munich Re pretty much stuck to its core competencies. Thirdly you want to see as little reinsurance leverage as possible. Reinsurance leverage is defined as the ratio of a reinsurer's reinsurance payables plus insurance and annuity liabilities plus its unpaid claims plus its debt to its capital. Munich Re definitely scored better on this front. Finally, you want to see your reinsurer having fairly steady loss experience- that is the combined ratio should not be jumping all over the place. In this item also, Munich Re had a better record than Swiss Re.

Key Takeaways from this chapter

It is impossible for a credit analyst to assess the creditworthiness of a company without a clear fix on the value of its assets and liabilities. Obviously it is not possible to get a value correct to the last decimal place, but the more the uncertainty in the value of assets estimated, the greater the equity cushion that creditors should demand for providing debt capital. This is true of all companies- whether a manufacturing company or a financial institution such as a bank or an insurance company. Yet credit rating agencies and credit counterparties were ignoring the asset valuation of their clients until the credit crisis hit in 2007.

In the case of manufacturing companies, the earnings number provides some hints as to whether the asset values have been correctly stated. If earnings before interest and tax are persistently below the cost of debt and equity capital, it points to overstatement of asset values and hints at the necessity of impairment charges. This might require shareholders and even creditors to take a haircut. Once the analyst is convinced that assets have been overstated, the next step is to try to identify the source of overstatement. Was the overstatement on account of goodwill from an M&A transaction that failed to live up to the promise of an investment banker's financial model at the time of the transaction? Was it due to intangible assets such as patents which did not deliver the expected cash flows? Or was it due to the property, plant and equipment failing to bring showers of blessing due to obsolescence creeping in? Identifying the part of the asset side of the balance sheet that is

overstated is critical for identifying what the creditor should do next. For instance, grasping early signs of obsolescence might provide creditors attractive exit opportunities.

The other side of overstating asset valuation in a manufacturing company is understatement of liabilities. Understating of liabilities starts from non recognition of these liabilities in the income statement over a period of time- such as understatement of pension liabilities. This overstates return on capital employed because all costs have not been provided for- so adjustments need to be made to earnings to correctly estimate returns.

One of the most poignant aspects of the 2007 credit crisis was credit rating agencies assigning credit ratings to commercial and investment banks with nary an idea on the values of assets of those firms. Several times the shareholders' equity of the banks was classified as Level 3 assets- assets for which no values were available in the market and which the banks were valuing pretty much the way they wanted. These values were justified through use of dubious financial models- completely divorced from reality and common sense. Level 3 assets are like the Cheshire cat in Alice's wonderland- they slowly vanish leaving behind only a grin.

How rating agencies permitted such a cleavage between stated values and reality is a wonder which perhaps only those agencies are qualified to explain- hopefully at a congressional hearing. If asset values are fixed based on whims, so are the earnings because profits and losses on the asset values are recorded in earnings. The only answer, any honest credit analyst should have had till 2007, was he did not have sufficient information about the assets to assess most banks for counterparty exposure. It is amazing that the interbank market existed at all till the credit crisis hit- when banks were lending to each other without being able to assess the counterparty credit risk. Perhaps the overwhelming reason was that people living in glass houses cannot throw stones. They could not point to the mote in the counterparty's balance sheet, without removing the beam from their own balance sheet.

It is winter of 2009, but we still can't assess the creditworthiness of most big US and European banks. In fact, the only basis on which one can lend to such institutions is whether they would be bailed out. And considering the increasing hostility among tax payers to such robbing the middle class to pay the rich, having likely bailout as the cornerstone of one's investment thesis does not seem terribly smart. Besides, the SDR of many countries have spun out of control- making such bailouts less possible.

Accounting standards might permit an organization to state its debt liabilities at fair value but a creditor is not in the business of taking a haircut on what is owed to him. For analysis, the creditor must consider all liabilities at face value not fair value, and companies recording such fall in value of liabilities as earnings must be considered to be overstating their earnings (such earnings are not available for debt servicing because it is premised on the assumption that the debt will not be settled in full). The only place where a credit analyst should give the benefit to the borrower is if the borrower takes advantage of the fall in liability values to buy back the liabilities. Understatement of liabilities is a fact of life in the insurance business and creditors should superimpose management integrity on stated liabilities for estimating the amount of cushion they would require. Because insurance claims are paid much later after the claims are filed, it provides management leeway for understating technical reserves for settling claims. We discussed some checks to spot under reserving, but it is not possible to state unequivocally that reserves have been understated except by relying on past experience of how often an insurance company had to resort to "reserve strengthening"

Liquidity of assets should not be an issue for solvent financial institutions. If there is a systemic liquidity problem, the banking regulator would step in – so there is no need for creditors to plan for that scenario. And individual institution liquidity problem does not arise- it only arises from grave doubts about its solvency. When any rumor swirls around a solvent institution, it should communicate in great detail with the banking regulator to ensure that the

regulator understands that it is solvent. Then, with the regulator by the side, the bank should communicate to all stakeholders in considerable detail, but in plain language, why it is solvent. Feeble communication or arrogance could be fatal. When a mortgage finance institution finances long term mortgages with funds raised in the overnight market, the problem is not one of liquidity but of solvency as rising interest rates could reduce value of assets below value of liabilities.

Chapter 5 Efficacy of Working Capital Management & Short Term Debt

Working capital management has a crucial impact on a company's return on capital employed (RoCE) and operating cash flows and hence its credit quality. The key items of working capital, inventory and receivables are part of current assets while supplier payables are part of current liabilities of a company's balance sheet. Working capital cycle is measured by adding the number of days of inventory to the number of days of customer receivables and subtracting the number of days of payables.

The inventory days, as a first approximation, can be obtained by calculating the ratio of the inventory to cost of production and multiplying the ratio by 365, the number of days of a year. This first approximation assumes all inventory is finished goods. To be more precise, the raw material inventory should be divided by annual raw material purchase, and the resulting ratio multiplied by 365. The finished goods inventory can be calculated from the finished goods inventory and the annual cost of goods produced. The work in progress inventory days can be calculated by dividing the work in progress inventory by the average of annual raw material costs and annual cost of goods produced, and multiplying the resultant ratio by 365. The total inventory days is obtained from the sum of the raw material inventory days, work in progress inventory days and the finished goods inventory days. In summary,

Raw material inventory days = $(\text{Raw material inventory} / \text{Annual raw material consumption}) * 365$

Work in progress inventory days = $(\text{Work in progress} / 0.5 * (\text{Annual raw material consumption} + \text{annual cost of goods produced})) * 365$

Finished goods inventory days = $(\text{Finished goods inventory} / \text{Annual cost of goods produced}) * 365$

$$\text{Total inventory days} = \text{Raw material inventory days} + \text{Work in progress inventory days} + \text{Finished goods inventory days}$$

The number of days of customer receivables is calculated by dividing the receivables amount by the annual sales and multiplying the ratio by 365. The number of days of supplier payables is obtained by dividing the payables item in the current liabilities section (including all accrued expenses) of the balance sheet by annual usage of supplier goods and services, and multiplying the ratio by 365. Hence,

$$\text{Receivables days} = (\text{Receivables} / \text{Sales}) * 365$$

$$\text{Payable days} = (\text{Payables} / \text{Annual supplier purchases}) * 365$$

Putting it all together,

$$\text{Number of days of working capital} = \text{Inventory days} + \text{receivables days} - \text{payable days}$$

Obviously, the aim of any corporation would be to keep the days of working capital at the lowest possible level to reduce the cost of financing the working capital requirements. Some companies even manage negative working capital days- which is wonderful if the company is a profitable one. For non profit making entities, negative working capital leads to fear among suppliers that there would not be adequate cash to meet the payable obligations once the inventory of the company gets converted to cash (negative working capital companies typically do not have the normal working capital cycle of conversion of inventory to receivables to cash to payment of payables, but skip the receivables stage).

As supply chains get globalized, these chains can get very fragile on account of companies resorting to just in time inventory management to prevent resources being stuck in working capital financing. When the reliance is on a single supplier or a few suppliers in the same country, any disruption in the supply chain coupled with the company having low levels of inventory can cause serious disruption in the production chain. Credit analysts must fully

understand the supply chain of the companies they are financing, its fragility or strength and its ability to withstand shocks in the global economy.

Importance of Working Capital Management to Credit Quality

The credit analyst's thoughts are on the drivers of return on capital employed (RoCE) (to be discussed in detail in chapter 7), for that is the key factor in the ability of an entity to generate cash to pay for its fixed obligations. Working capital management has a key role in this.

Consider the business at a typical love hotel in Tokyo. Guests pay “rest charges” for the usage of a room for a few hours. They pay in cash. There are no receivables. There is no unsold inventory. Every morning, finished goods inventory (of room and services) is made available, which if not sold, has to be written down to zero at the end the day. There are some payables on account of salaries to be paid in arrears. So, every day, on a sustained basis, the company generates cash flow which can be quickly used to pay down the debt taken for creating the facility. There is no need for short term funding to buy inventory or finance receivables. The number of days of working capital is zero or negative on a sustainable basis. And because the same room is used several times over the course of a day, the capital resources are not idle and hence the RoCE shoots up.

Now consider an automobile company in Detroit, USA. Long before the company closes the sale of a car, it must buy steel (“raw material inventory”), bash the metal into a car (“work in progress inventory”) and store the car (“finished goods inventory”) for a few days before moving it to its dealers' parking lot. The suppliers of steel and other ancillaries would give the automobile maker some time to make the payments (creating the “number of days of payables”). In turn, the automobile maker provides the dealers some time to pay for the finished goods (creating the “receivable days”). At every stage in the process, there is risk to the creditworthiness of the automobile enterprise. Because the automobile company must buy the raw material, pay wages to convert the raw material into a finished product

before it can sell the goods and get cash from the dealer, the enterprise needs working capital financing for the period between procurement of raw material and realization of cash. True, the supplier has provided some time to make the payment for the raw materials- but this benefit is nullified by the time provided to the dealer to pay for the inventory of cars.

In addition, if the supplier is in another part of the world, the automobile company might want to buy and store additional raw material inventory in excess of what he needs for immediate production as a buffer against stoppage of production should there be disruption at the supplier's end. Stoppage of production can be very costly in some industries- so the purchase and maintenance of additional raw material inventory as an insurance against disruption of global supply chains might be worth it. In fact, the credit analyst analyzing companies where stoppages can be costly should worry if the company is maintaining ultra low inventory to release cash and justifies it under some management jargon.

Contract structures can cause high inventory and high working capital needs -Detroit car makers signed contracts with unions in the 1990s which paid workers whether they worked or not. This ensured that fixed costs were high. The only way to reduce unit cost was to increase volume of production. This increased production had to be offloaded at high discounts to rent-a car companies. High volume of non profitable sales lead to further need for unproductive working capital financing, besides leading to the destruction of residual value of the company's vehicles (which the car makers also guaranteed in some lease agreements through their finance arms).

It is in the area of work in progress inventory that good companies set themselves apart from the rest. In 2008, Honda took less number of hours to produce a car than General Motors. That translates to several days lower work in progress inventory. In the finished goods arena, if the dealers are not able to push car sales, they would be slow to demand fresh finished goods inventory from the car maker, translating into higher finished goods inventory at the

producer's end. Of course, as the technologies for managing supply chains have improved, the car maker would be aware on a real time basis about the sales at the dealers' end and hence make adjustments to his production schedule and purchase orders for fresh raw material inventory, thus reducing idle raw material inventory days. So, over time, productivity improvement technologies can reduce working capital days and lead to better management of short term resources. This however cannot compensate for longer term loss of competitiveness of a company's products and associated lower sales.

In the early 1990s it was fashionable to be called a cost cutter who would squeeze suppliers to the very bone by demanding aggressive pricing and payment terms. That would increase the number of days of payables and reduce the short term debt required for working capital financing. Aggressive cost cutters drove their suppliers into bankruptcy. Japanese manufacturers who worked closely with their suppliers were able to manage sustainable increase in working capital efficiencies. In the late 1990s Toyota got into trouble when it forgot its core philosophy of working with suppliers and instead started squeezing them for cost savings- even if those savings were achieved through cutting corners.

Yes, working capital days need to be kept to a bare minimum to the extent that prevalent supply chain technology can permit. Once at the efficiency frontier, any further attempt to squeeze cash out of the chain would be counterproductive and result in loss of long term competitiveness. At the efficient frontier, while keeping an eye on working capital management for possible further improvements, management's attention should be focused more on product quality. Excessive focus on working capital management at the efficiency frontier is the first cousin of financial engineering and diverts attention from real engineering. The credit analyst should worry if working capital days are out of sync with industry norms both on the positive and on the negative side. On the negative side, the issue is obvious- the company's high working capital days would translate into higher financing requirements and

higher interest costs. On the positive side, the analyst must really put a finger on how a company is managing lower working capital days- else the analyst would be in for a shock at some point in the future when the supply chain snaps and grievous costs have to be borne.

LIFO, FIFO and valuation of Inventory

As per accounting standards of most countries, inventories can be valued on a first-in first-out (FIFO) basis or on a last in first out (LIFO) basis. FIFO valuation of inventory overstates earnings during periods of high inflation, particularly for companies in the commodity businesses, because the cost of inventory purchased earlier is lower than the inventory purchased later. That lowers the cost of goods produced and inflates the earnings before interest and tax. LIFO accounting is more conservative as it reflects current costs, whether high or low. But it requires write down in value of inventory during periods of falling prices.

Over a period of time, as long as a company is consistent in its inventory valuation methodology, it does not really matter, as a credit analyst is supposed to worry about return on capital employed over a business cycle and not at a single point of time. But an analyst should wonder when a company changes its accounting policy from LIFO to FIFO. The reason is not the consequent overstatement of earnings (though the analyst should estimate that), but the unhealthy attitude of management towards reported earnings, which might result in nastier outcomes in times to come.

Inventory valuation can get more confusing- leading Aluminum maker Alcoa values its US and Canadian inventory (which accounted for 39% of the total inventory in 2008) using the LIFO method, while it values other inventory using the average cost method.

Receivables Management

Receivables management usually takes a back seat compared to inventory management. For credit and equity researchers, two facets about receivables management would be of interest.

First, are sales being achieved through promising favorable terms of payment (longer credit periods) which are out of whack with industry norms? Second, what is the quality of the receivables- are they likely to be recovered in full as per terms of payment or is one likely to witness write-offs?

Channel Stuffing and Receivables Valuation at Sunbeam, Coca Cola and McAfee

Companies resort to channel stuffing when real sales are not growing and shareholders demand action. Marketing managers, when under intensive pressure, force dealers to accept inventory higher than their requirement so that the company can book additional revenue in a quarter. The dealer might put up with this forced sale because he is offered cash incentives or sharp discounts on his purchase. Else, he might be arm-twisted into taking the supply on account of low bargaining power. Either way, such a business practice is not sustainable. Weakening the financial strength of a dealer is harmful for long term sales as the dealer might go out of business. And if a lot of incentives have been offered for securing the movement of goods to the warehouse of the dealer, it weakens the financials of the company.

Credit analysts should spot possible channel stuffing early, because when the channel stuffing is revealed, the negative energy around the company's financials and doubts about everything in the reported financials can cause various stakeholders to back out at the same time, potentially causing a default. Channel stuffing is a fraud and can expose a company to regulatory sanctions and fines.

Bankrupt maker of household products, Sunbeam Corporation was involved in channel stuffing among other accounting wrong doings. The company gave financial incentives to dealers in 1997 to take supply of goods before they were needed to meet customer demand. Its wholesalers agreed to hold Sunbeam merchandise over a quarter-end without accepting any of the risks of ownership. The company's agreement with the wholesaler stated that he

could return all merchandise to Sunbeam if he could not sell it and that Sunbeam would reimburse to and fro shipment expenses and other costs such as insurance expenses. The wholesalers actually returned the goods a quarter later. So, the increased revenue disclosed was achieved through wasteful costs such as incentives and cost of shipping the goods. The sharp increase in receivables beyond normal levels resulted in increase in debt to finance those receivables and should have been a pointer to the credit analyst on the suspicious nature of the sales.

Even companies like Coca Cola have been alleged to have been involved in channel stuffing. The company was alleged to have boosted its reported revenues in 1999 (particularly in the Japanese market) by enticing bottlers to take on concentrates beyond what was required. In 2008 the company settled a related lawsuit for \$137.5 million without admitting any wrongdoing. And channel stuffing can extend beyond physical goods. Between 1998 and 2000, IT security vendor McAfee overstated revenues by \$622 million and understated losses by \$353 million. The company offered sharp discounts to those distributors willing to hold inventory. When those inventories had to be ultimately returned, the company used its own subsidiary, Net Tools, to repurchase the inventory (an added reason why one has to look at the consolidated financials of an entity). The company had a partner in crime in IT distributor Ingram Micro, whose profit margins were artificially boosted by its dealings with McAfee. The case was settled with McAfee paying a fine of \$50 million and Ingram Micro paying a fine of \$15 million. Pharmaceutical major Bristol Myers Squibb inflated its 2001 revenue by \$1.5 billion through channel stuffing.

Allied to channel stuffing is the practice of “bill and hold” in which the seller, who has not shipped the goods, books the revenues because the buyer has agreed to take the goods but wants to hold off shipping. At least, this practice does not result in wasteful to and fro shipping costs.

Payables Management- do no harm

Creditors should be wary of companies that get into continuous disputes with their suppliers and burn their bridges during such fights. It is not possible for companies to survive at the cost of their suppliers. Because of their bargaining power, companies might be tempted to arm twist their suppliers into accepting unreasonably low margins (which do not generate the required return on capital employed) or extended payment terms. When the supplier gets into financial trouble on account of such disputes, the whole supply chain is drastically weakened. Creditors have to understand that a supply chain survives on the strength of the consolidated financials of the whole chain as well as how the profitability of the supply chain is distributed. Understanding the credit story of the whole supply chain is fundamental to analyzing its future prospects. If the profitability at the top of the chain is achieved through stealing from the intermediate stages, it will not last. Short cut approaches to cost cutting by tearing up long term supplier contracts look impressive at first sight. But the long term effects are seldom positive. How much better it is for all stakeholders if supplier prices are brought down by a process of collaboration and supplier involvement in designs rather than through diktats. Creditors need to start worrying when returns on capital targets are achieved through ever nastier disputes with suppliers on operating margin issues and unwarranted increase in payable periods.

The differential supply chain management of General Motors and Toyota is a good example. In the early 1990s, General Motors had an aggressive purchasing manager, Ignazio Lopez, who would get into slanging matches with suppliers by threatening to tear existing contracts and demanding huge discounts. General Motors achieved nothing substantial or lasting through those encounters. Toyota's relationship with its suppliers took the company from strength to strength. Lopez defected to Volkswagen, but not before GM accused the purchasing manager of giving away trade secrets to Volkswagen. Aggressive cost cutting by

Detroit's carmakers drove suppliers like Visteon, Lear and Delphi into bankruptcy, which imperiled the companies themselves. Toyota got into trouble later when it let go of its collaborative approach in its dealings with suppliers in markets outside Japan. Before it could develop a collaborative relationship with suppliers in countries such as the US, the company took its eye off the ball and focused on growth and market share at all costs.

From a credit point of view, one likes to see increased operating margins coming from increased sale prices, not based on ever decreasing supplier costs. An increase in payable periods, unless it is an industry wide phenomenon, has to be looked upon warily. Suppliers include lessors such as lessors of commercial property as well as equipment.

Prepaid Items in Current Assets and Current Liabilities

Prepaid items on the liabilities side of a company's balance sheet are generally good for a company. The reverse is true for prepaid items on the asset side. That is because, in the case of prepaid liabilities, the customer is then providing cash upfront for a portion of his purchases. This implies customer commitment as well as zero cost financing for the company. Customer advances are common in businesses where the time for delivery is far from the consummation of the purchase contract. Industries where one sees customer advances include ship building, construction and real estate. It reduces the risk to the company if the customer gets into financial difficulties after awarding the contract and a portion of the work has been completed.

Payments made in advance like a magazine subscription should not be booked immediately but over the life of the subscription. There have been many instances of prepaid items being recorded fully in the income statement immediately.

How should Working Capital be financed?

Obviously one cannot have the entire working capital requirements financed by short term debt. It would not give comfort to creditors, particularly if the company is not financially very strong. For a financially challenged company (we are not referring to a distressed company here), suppliers rely on conversion of inventory to receivables into cash for payment of their obligations. And the suppliers and financiers of working capital need adequate allowance for slippage such as destruction in value of inventory, either due to price falls or obsolescence and non-collectability of some of the receivables.

In the case of strong companies, though theoretically the suppliers and short term lenders rely on liquidation of receivables for payment, money being fungible, it does not matter if the supplier and short term creditors are paid out of overall corporate profitability (the overall profitability itself means that there is cash available after payments to suppliers). In such a case, the short term creditors and suppliers need not worry if the entire working capital requirements are funded with short term debt. Wal-Mart can finance its working capital thus without worry creases developing on the forehead of the short term creditors and suppliers. In 2009, Amazon's suppliers did not have to worry about the negative working capital levels of the company (in fact it is a positive bonus which contributed to overall corporate profitability, lower leverage ratios and lower capital employed). But a decade ago, when Amazon was a start up making operating losses, the company was lucky to have a stock market bubble on, which ensured forbearance of all suppliers to its negative working capital situation.

Do not draw comfort from lines of credit- they might be pulled out when you really need them under the garb of some material adverse change clause. Prior to the crisis in the auto industry in 2007, Ford drew its lines of credit and kept it in the form of cash – hence it lived to fight another day. The only way for creditors to invest in such touch and go companies is

through convertible instruments where they get a portion of the upside if things turn out alright (so that there is adequate compensation for taking on venture risk).

Inventory Management in the Mining and Ore Processing Industries

The mantra for success of a metal producer's operation is the managing of inventory efficiently through reduction in production volume in a timely manner in response to lower demand. The best study in this occurred during 2008 and the first quarter of 2009. During the first three quarters of 2008, commodity prices were hitting all time highs. During the next two quarters, demand collapsed in response to the global financial crisis and prices in some cases fell by more than 50%. In the United States, steel demand in Q1 of 2009 was 49% below that in Q1 of 2008. When prices fall drastically, the inventory held by the metal producers sharply loses value. If you calculated finished goods inventory days at that point, it would be meaningless due to the sharp fall in value of the inventory. The cost of goods calculated on a trailing basis would not bear much relationship with what will happen in the future- as unit costs would fall as would volume of sales. This is particularly true for metal producers in developed countries. In addition, during these periods, the quality of the receivables falls sharply as end users retrench.

When demand falls and inventory goes up, metal producers have to cut production. When production happens at less than full capacity, the fixed cost of production would have to be shared by fewer tones of production, causing production cost per unit to go up. How the metal producer can respond to this crisis impacts his credit quality. A company with multiple units spread across the world can respond to the crisis by operating some units at 100% capacity while keeping other units in hot idle condition. Because of this, the company's fixed cost per tone goes up much lower than that for a single unit producer which operates at less than 100% capacity. Single unit producers get tremendous scale advantages when the economy is performing well and are better for shareholders as they capitalize on shared

services. But for creditors, multiple units are better because the creditor is interested in what happens in the down scenario and not in the up scenario.

In the case of ore producers, rather than inventory and working capital, the biggest risk is reserve estimate, which can overstate or understate profitability. Actual reserves of ores might be much different from estimates. If reserves are overstated, the “depreciation and depletion” account in the income statement might be understated, thus overestimating profitability. Also, extraction costs go up as reserves deplete- in other words, last year’s cost structure might not be a good indicator of next year’s costs if most of the mines of the producer are ageing. In addition, such companies have to be involved in exploration to replenish reserves, which is a highly speculative activity.

If the expenses of a company in exploration activities are a high percentage of total costs, the company might not be suitable for credit investments. In such companies, it might be better to ring fence the exploration activities in a separate SPV whose maximum possible liabilities can be quantified by the equity investments made by the parent mining company. The parent company can issue low coupon bonds which also provide potential upside by giving rights on the shares of the exploration SPV. If the exploration activities are successful, the investor gets the upside- if not, his principal is protected. A model for this is the so called shareholder debentures issued by Brazilian company Companhia Vale Do Rio Doce (“Vale”). Vale is the largest producer of iron ore in the world and the second largest nickel producer. The company was founded by the Brazilian government in 1942. It was privatized in 1997. When it was privatized, Vale issued shareholder’s debenture to the Brazilian government, which could then participate in the potential future benefits derived from exploiting certain mineral resources that were not taken into account in determining the purchase price of shares during privatization. Based on this, the debenture holders have the right to receive semi-annual payments equal to a certain percentage of revenues from identified mineral resources.

This could also be a model that can be followed by other governments for privatizing resource rich companies/infrastructure assets, the true potential of whose resources/assets are not fully known, so as to avoid controversies that national resources were sold for a song.

A credit investor in a company like Vale should look closely at the head “capitalized mine development costs”. This has to be written down over the useful life of the mine. There is a lot of uncertainty in the life of a mine as mentioned earlier. So creditors would do well to stress test the useful life of the mine and then check for the company’s ability to service its debt. At the end of 2008, Vale had \$ 16 billion of capitalized mine development costs on its balance sheet and railroads to those mines were capitalized to the extent of \$ 5.8 billion. If the useful life of the mine is less than projected, these carrying values have to be written down over a shorter period of time.

ArcelorMittal- Well positioned to handle downturn in Steel Prices after the Credit Crisis

During the long rally in commodity prices till the middle of 2008, many companies went on a debt financed acquisition binge. ArcelorMittal, the world’s largest producer of steel came into existence from the combination in 2006 of Mittal Steel and Luxemburg based Arcelor (at that time the world’s largest and second largest steel companies by production volume). How Mittal Steel came into existence, through the consolidation of distressed steel assets spread across the world over a three decade period, is a story in its own right. ArcelorMittal makes a range of high quality steel, semi finished carbon steel products and stainless steel products.

Because ArcelorMittal has predominantly been involved in acquiring existing assets as an industry consolidator, and not as a creator of new assets, risks emanate not from project execution but, from the creditor view point, overpaying for assets, thus splattering the asset side of the balance sheet with goodwill which is prone to being written down.

As was the case with other metal producers, in 2008, ArcelorMittal had entered into several forward purchase agreements for buying ores at fixed prices for a few years into the future. The company did not seem to be hedging finished products price risk. When demand fell precipitously, these contracts caused raw material inventory to go up. Because of this ArcelorMittal's raw material inventory went up from \$ 6.7 billion at the end of 2007 to \$ 9.7 billion at the end of 2008. The volume impact is understated because the price crashed- so the jump in volume of raw material inventory was more than 50%. If finished goods were sold forward, the drop in demand would not have caused finished goods inventory to go up. The added advantage, from a creditor's shoes, is when prices fall, the company would have marked to market gains on its forward sale contracts, which because of producer margin, would be higher than losses from forward purchase contracts for ores.

ArcelorMittal, from its 2008 annual report, seemed to have had forward purchase agreements for raw materials, freight, energy and emission rights and no forward sale agreements on its products. Hence the volume of its finished goods inventory sharply rose - the inventory fell in value to a small extent from \$ 8.1 billion at the end of 2007 to \$ 7.8 billion even as unit prices fell sharply. The effect is exacerbated when one considers that the company had taken a write down in value of inventory of \$ 3.04 billion. The company seemed to have been convinced that commodity prices would continue to go up, hence the desire to benefit from higher finished goods prices and meeting the demand with lower raw materials prices. Of course, this calculation turned wrong- so in 2008, the marked to market losses on its forward purchase agreements of raw materials was \$ 721 million. Had the company hedged finished goods prices or sold forward finished goods, the effect would not have been so precipitous. At the end of 2008, the company had purchase agreements that amounted to \$ 29.7 billion. From a credit analyst's perspective, after a period of rising commodity prices (say four years), it would be wise to assess the impact of all forward purchase and sale agreements should

prices and costs fall by as much as 50%. Likewise after a period of falling prices, it makes sense to assess the impact on account of forward sale and purchase agreements should there be a 50% jump in prices. Of course, a technical analyst, who believes what happened yesterday, is likely to happen tomorrow, would scoff at this cautionary analysis, but we can live with that.

Inventory adjustments can be extremely brutal in the commodities business. In the first quarter of 2008, ArcelorMittal had an operating income of \$ 3.6 billion. This dropped to a loss of \$ 4.4 billion in the last quarter of 2008. As the adjustments were coming to an end, the operating loss in the first quarter of 2009 was only \$ 1.5 billion. In 2007, the company produced 116 MT of steel. This dropped to 103 MT in 2008. Things would have been far worse had it not been for the excellent performance during the first three quarters of 2008. In the first quarter of 2009, the company took a further write down of inventory value of \$ 1.2 billion.

At the end of 2008, ArcelorMittal had receivables of \$ 6.7 billion. Though it was comforting that no single entity contributed heavily to the receivables, the fact that \$ 4.3 billion of the receivables were from entities operating out of the slow moving economies of Europe would not have been comforting.

The company had a preponderance of floating rate debt over fixed rate debt (\$ 22.6 billion of floating rate obligations versus \$ 6.9 billion of fixed rate obligations) like most commodity players- we discuss in the section on Anglo American below why that is not always a sound strategy from a creditor's perspective. However, the company reduced the risk of default by refinancing short dated obligations in the first half of 2009 with long dated obligations. The company also issued convertible bonds with a face value of \$ 2 billion in 2009. In June 2009, ArcelorMittal issued €1.5 billion notes due 2013 and €1 billion notes due 2016. These

liability management measures along with drastic restructuring should ensure that the company is around in decent shape to tell the tale when the notes due in 2016 mature.

Anglo American's Funding Policy and Hedging Policy are risky for Creditors

Mining giant Anglo American was founded in South Africa as a gold mining company in 1917. Currently it is headquartered in London. The company is involved in the extraction of base metals, coal, diamonds (through its 45% stake in De Beers), iron ore and platinum.

Anglo American has a couple of policies which are worrisome for creditors. Firstly, the company does not hedge commodity price risk. This might be sensible for shareholders and even for creditors provided the company has a low gearing. Unfortunately that was not so for Anglo American. At the end of 2008, the company had \$21.7 billion equity supporting \$ 49.7 billion of assets. So, drastic fall in commodity prices can have a very profound impact on the company's debt servicing metrics. In a delayed action S&P downgraded Anglo American by two notches in the first half of 2009 from A- to BBB. Definitely the downgrade should have happened earlier when there was a sharp run up in commodity prices- such sharp run ups are inevitably followed by busts.

Secondly, the company has a policy of borrowing at floating rates based on its thesis that this is a natural hedge against commodity price movements. The thinking is, if economic growth slows down, commodity prices would fall, impacting the top line. However, the impact would be dampened because interest rates too should fall in response to an economic slowdown. The risk here comes from the fact that this hypothesis is not always true. Interest rates can fall in response to economic slowdown, but credit spreads can go up as happened during the later part of 2008. Floating rate borrowing based on the thesis "low economic growth- low interest rates" works if the borrowing costs are linked to policy rates or yields on government securities. If the floating rate base is one with credit risk such as LIBOR, the

thesis might fail when credit spreads go up. This is particularly likely if the banking system is a participant in the bust.

In 2008, Anglo American had a working capital gap of \$ 0.9 billion. Yet it had short term debt of \$ 6.7 billion out of a total net debt of \$ 11.34 billion. Clearly the company was using short term debt, not for working capital financing, but for procurement of long dated assets. This was not a one-off event. In 2007, despite having a negative working capital gap, the company had short term debt of \$ 5.9 billion. Other mining companies' balance sheets, particularly those with fondness for M&A transactions, also had a short term debt flavor. Australian mining company Rio Tinto, on the back of acquisitions and other financing, had short term debt far in excess of working capital needs and is very vulnerable to any fall in commodity prices. The acquisitions were made in the go-go years, such as the acquisition of Canadian Aluminum major Alcan. London based mining player Vedanta has been more circumspect in its acquisitions- it kept its powder dry and was sitting on cash at the end of 2009, which if used in a few years would result in sound RoCE. It got out sensibly from the takeover attempt of Mexican copper company Asarco from the bankruptcy court (in bankruptcy because of asbestos claims). Asarco was finally taken over by Grupo Mexico. Vedanta's credit story is almost entirely dependent on how intelligently/foolishly it deploys its cash pile.

Other players in the mining sector had been more adept at reducing their short term debt in response to falling working capital needs as commodity prices and demand collapsed in the third quarter of 2008. Zug, Switzerland headquartered copper, coal and nickel producer Xstrata reduced its short term debt from \$1.1 billion in 2007 to \$ 794 million in 2008 in response to its net working capital falling from \$3.65 billion to \$2.73 billion. However, in 2008, Xstrata became a riskier company as the company's long term debt drastically shot up and its debt equity ratio rose from 0.51 to 0.68. Still, Xstrata should survive the medium term

tough times ahead for commodities. We don't belong to the camp that believes commodities will thrive the moment western economies recover from the credit crisis, because fundamental demand will be hit there as household debt adjusts to "new normal" levels. For instance, the US consumed 25% of global crude oil production, while China consumed 11% and India 4% in 2008. A sizeable fraction of Chinese demand was linked to production of trinkets for the US. So, if the US demand fell by 10% and those of India and China each rose by 10%, (ignoring the US component of Chinese demand), the net result would be lower demand for crude. When one factors de-growth in Western Europe and Japan, the effect would be more pronounced. The same would be the story for base metals, notwithstanding the short term run-up in commodity prices in response to the continuing folly of easy money policies in many countries in 2009-2010.

Where Inventory gains value with Time: the big Liquor Companies

The amount of inventory of a spirits major is linked to how much non- beer related products are part of the product portfolio. For instance, Asahi Breweries, Japan's number one beer company which supplies more than 50% of the domestic market, has comparatively low inventory. For the year ended March 31st 2009, the company had an inventory of \$1.06 billion (of total assets of \$ 14.2 billion), that too mostly in finished goods inventory and raw material inventory. UK listed global spirits major Diageo (the owner of brands such as Captain Morgan rum, Smirnoff vodka etc) carried inventory of £3.16 billion out of total assets of £18 billion at the end of June 2009, mostly in work in progress inventory. This work in progress inventory, also referred to as maturing inventories of whisky, rum and wines, was valued at £2.27 billion, while finished goods inventory was valued only at £0.5 billion. Since these inventories are carried at lower of cost or realizable value, creditors have a source of comfort. As long as the brand strength of the liquor is preserved, the actual value of the maturing inventory is much higher than cost. French spirits leader Pernod Ricard

(which took over Allied Domecq in 2005) recorded work in progress inventory of €2.9 billion (out of total inventory of €3.7 billion) as on 30th June 2009. The company carried total assets of € 18.43 billion. The maturing inventories were predominantly for use in whisky and cognac products.

There is a strong correlation between brand value and real valuation (and not stated valuation) of maturing inventories. The day the brands lose value, the maturing inventories would have a value close to cost. And creditors' cushion will go for a toss. Considering the leveraged balance sheet of the leading players, creditors need every bit of cushion they can find. The biggest worry is as households of countries like US and UK repair their balance sheets, they might be less and less inclined to pay a premium for Captain Morgan rum. Diageo carried the value of its brands at £4.6 billion for the year ended 30th June 2009. The company had an operating profit of £2.4 billion on net sales of £9.3 billion- a clear testimony to the company's brand strength. Pernod Ricard, which owns brands such as Chivas Regal, had an operating profit of €1.76 billion on sales of €7.2 billion- again indicating brand strength. The company's intangible assets shot up from €7.1 billion to €11.3 billion from June 2008 to June 2009 thanks to acquisition of brands. The total assets of the firm were €18.4 billion.

Receivables are preferable to Inventory in the Fashion Retail Industry

The quicker the obsolescence in an industry, the faster the inventory must be sold off to prevent sharp write-down in its value. And there are few industries that are as prone to obsolescence as the high fashion industry. If the inventory is not sold off by the end of the season, the retailer has to take a sharp bath in terms of realized value. And selling the inventory at sharply reduced prices at the end of the season does not do the brand any good. In such industries, it is far better to get the inventory converted into receivables as soon as possible, even if the receivables are not exactly of pristine quality. Fashion product maker

Liz Claiborne, supplier to luxury retailers such as Macy's referred to this inventory valuation in its 2008 Form 10K in the following circumlocutory way –“.....maximizing inventory productivity by tightening assortments to develop SKU efficiencies and sharpening our price points to maximize inventory turns for both wholesale and retail operations”. Fashion high priest, Abercrombie and Fitch put it as follows “the company attempts to balance in-stock levels and inventory turnover and to take mark downs when required to keep merchandise fresh and current with fashion trends”. The company creates an inventory shrink reserve to take into account the inventory markdowns required and treats it as a part of the cost of doing this business.

Sales returns can be treated like inventory markdown, because the effect on the company's profitability is similar. Companies in this industry typically create a sales return reserve. It is better to entice the buyer to buy the products even if there is no certainty that the customer will be satisfied and not return that product. Perhaps once the good is sold, sheer lethargy might induce the customer not to return the product- a far better thing to hope for than wait till the end of the season and take a markdown in value of the unsold inventory. In beauty products, sales returns can be higher. Estee Lauder, one of the more famous players in the space had sales returns around 4.5% in the three years up to 2009.

Because of the sharp speed at which things can change in this business, it makes sense to have as little debt as possible so as to have the maximum financial flexibility during hard times, when discretionary businesses such as this are most affected. Abercrombie and Fitch has one of the few right capital structures for the business- it has a fairly low level of debt as does the other biggie in the fashion business Polo Ralph Lauren.

Most players use the FIFO method of accounting for valuing inventory. Most of the inventory is finished goods inventory. Since the first created inventory is losing value rapidly compared to later inventory, in this industry that is the right way to value inventories. The

optimal method is to value raw material inventory using the LIFO method and finished goods using the FIFO method. Since finished goods dominate, a credit analyst needs to focus only on that. For example, Spanish luxury dress maker Grupo Inditex, the owner of brands such as Zara, had at the end of 2008, € 991 million in finished goods inventory out of a total inventory of €1.05 billion. Because this is measured at lower of cost (FIFO) and realizable value, there could be delays in management recognizing lower realizable values. Inditex has had a hugely successful model of quick inventory turns- this has resulted in the company, unlike its other counterparts, having negative working capital requirements recently.

Unredeemed Gift Vouchers- a valuable Revenue Stream

An interesting source of revenue for the fashion retail industry is unredeemed gift vouchers. Upon the purchase of a gift voucher, the retailer establishes a liability for its cash value. The vouchers that are likely to be redeemed within a year are recorded as current liabilities. The liability is removed and income earned as net sales upon redemption by a customer. Not all vouchers are redeemed by the owners of those vouchers- it is a function of the state of the economy. This non redemption of vouchers is referred to as breakage. Usually, the certificates have an expiry date- if they are not redeemed by then, the retailer can book it as “other income”. Unredeemed gifts vouchers can be a substantial amount- for leading fashion retailer GAP, it fell from \$319 million for the year ending January 2008 to \$ 255 million for the year ending January 2009, in keeping with the deteriorating economy which would have caused lesser gift giving and quicker redemption. In 2008, redemption was higher than issuance of fresh gift cards as opposed to 2007 when the reverse situation prevailed. Even if all the vouchers were to be redeemed, it is an excellent source of short term financing which cuts the need for short term borrowings.

Marketing Costs cannot be sacrificed

The credit story of fashion retailers is closely linked to people playing a one-upmanship game in their social circle. It is telling their acquaintances that they can afford to pay for those goods and less linked to the intrinsic value of those goods. In such a state of affairs, marketing expenses are pivotal for a retailer to keep up the illusion of desirability of his products. If your neighbor does not know about Versace, the consensus reality value of its products, irrespective of quality and intrinsic merit, falls. If the neighbor does not know Versace, he does not know that the company produces expensive accoutrement and the whole purpose of buying the Versace dress goes for a toss. So, the onus is on the high fashion retailer to market the product in appropriate forums, not accessed by the average person, to let people know that the product exists, that it is exclusive and that it is not cheap (“everyday low prices” cannot be the marketing slogan here). Obviously, marketing is the key to the companies’ credit story as much as research and development are part of Intel’s investment story. You can’t cut marketing expenses in times of economic slowdown to boost short term profitability. Any fashion retailer cutting his marketing costs is signaling to creditors to get out.

GAP reduced its marketing expenses by \$97 million in 2007 and by \$ 41 million in 2008. Liz Claiborne cut its marketing expenses from \$205 million in 2007 to \$135 million in 2008. Abercrombie and Fitch, sensibly, based on a clear understanding of what it was selling, cut its marketing expenses by only 2%. Estee Lauder actually increased its sales and promotion expenses during the tough times.

One should be worried about the future of fashion retailers, as conspicuous consumption, not only becomes less affordable in an environment of high household debt, it itself might become less fashionable. What if, after the two decade consumption binge, thrift becomes the new chic? What if some very rich people start flying economy class on airplanes instead

of chartering them? What if Angelina Jolie announces to the world that she shops for her lingerie at Wal-Mart? What would that do to the credit quality of Limited Brands, the maker of the Victoria Secret brand of lingerie? In a flash, the consensus reality on the value of its products would shift to reset mode. And creditors might not have the time to get out in the ensuing stampede. Already a string of luxury retailers such as Christian Lacroix and Escada AG have filed for bankruptcy and others such as Saks are perilously close. Despite the flight away from conspicuous consumption, retailers such as French company LVMH, whose products also represent value and durability should survive.

Limited Brands, at the end of 2008, had inventories worth \$ 1.2 billion and it carried goodwill of \$1.4 billion from acquisitions, particularly from the acquisition of Canadian lingerie maker La Senza (the \$ 1.4 billion goodwill carried is post the \$215 million goodwill impairment charge that the company took on the La Senza acquisition in 2008). The total assets of the company were \$7 billion and shareholder equity was \$1.87 billion. The correlation between the inventory valuation and the valuation of goodwill in this case is particularly potent and can lead to the wipe out of a substantial portion of shareholders' equity. And the fashion business is literally a graveyard for goodwill emanating from acquisitions made in rosy times. Private equity shop Permira bought fashion house Valentino for €5.3 billion in 2007 at the height of the bubble. By mid 2009 the value of the investment was written down by half. Liz Claiborne had shareholders' equity of \$2.1 billion at the end of 2006. By the end of 2008, the shareholder equity had plunged to \$503 million on the back of, among other things, write down of goodwill and trade mark of \$487 million in 2007 and \$ 693 million in 2008. The debt equity ratio was racing towards 1.5 and higher. At the end of 2008, "the dressmaker for the professional woman", Ann Taylor, wrote off the entire \$286 million goodwill on its balance sheet. Because it did not have a leveraged balance sheet, the

company could face up to the new reality faster than others with more indebted books of accounts.

Franchise Model drives Working Capital needs in the Restaurant Business

Typically restaurant chains get their revenues from three sources- company owned restaurants, franchise revenues (royalty as a percentage of sales and fees) and property income from space leased to franchisees. The nature of the business mix determines the nature of working capital requirements. A company that owns all its restaurants is required to employ considerably more capital (more capital expenditure) but it usually enjoys negative working capital requirements. Customers usually pay by cash. Suppliers extend credit periods. Inventory cannot be too high in the business as the food needs to be fresh.

However, if a company gets the bulk of its revenues from franchisees, that is not likely to be the case as franchisees ship a percentage of sales as royalty to the company after a certain period. If property rentals are paid in advance by franchisees, it reduces working capital requirements.

Anyway, companies with the franchisee based business model are likely to have receivables close to their payables and the inventory requirements push the working capital needs into the positive zone. For instance, at the end of 2008, Burger King Holdings, the owner of the company that sells the Whopper, had 90% of its restaurants franchised. The company had receivables of \$ 130 million and payables \$127 million. Inventory, shown in the balance sheet as prepaid and other current assets, showed a balance of \$86 million. The franchisee model has the disadvantage that if a particular franchisee does not have the financial resources for remodeling the restaurant and for other essential expenses, it can hurt the brand as a whole. If a customer has had a bad experience at one Burger King joint, he is likely to refrain from visiting a restaurant of that chain anywhere in the world. So, franchisees in distress need to be supported to prevent them from killing the value of the brand. As on 30th

of June 2009, the company's potential exposure from having to support such franchisees stood at \$ 9.9 million- a figure that is likely to go up until US household debt levels comes back to reasonable levels. In addition, the company had guaranteed \$ 74 million of lease rental payments of franchisees, effectively reducing the benefit from the franchisee model of lower capital deployment requirements.

Restaurant chain Yum Brands operates or licenses under famous brands such as Taco Bell (Mexican food), KFC (earlier known as Kentucky Fried Chicken), Pizza Hut, Long John Silver and other restaurants worldwide. For sheer number of restaurants owned or franchised, Yum Brands is the largest restaurant operator. Because the company relies less on franchisees than Burger King, the company had negative working capital requirements. At the end of 2008, the company had payables of \$1.47 billion while the sum of its inventories and receivables was \$ 664 million.

The Wendy's Arby's group was formed in 2008 through the merger of two restaurant chains- Wendy's and Arby's. In that year itself, the company took a goodwill impairment charge of \$ 460 million in connection with the acquisition of Arby's. The group had a fairly high proportion of owned restaurants (particularly the Arby's bit of the business). Current liabilities in the form of payables and accrued expenses were much higher than the current assets from inventories, prepaid assets as well as receivables.

Manila headquartered restaurant chain Jollibee Foods Corporation is the largest Filipino fast food company with several branches in the US and other parts of the world. The company operates its chains through brands such as Jollibee and Chowking. Because of its franchisee model, the company had positive working capital requirements- the company had, for the year ended December 2008, inventories of 2.5 billion pesos, receivables of 1.9 billion pesos and other prepaid items to suppliers of 1.5 billion pesos. Its payables amounted to 3.6 billion pesos.

Ultimately, a company and its franchisees are part of the same consolidated chain- it is not possible for one to prosper at the cost of the other over extended periods of time. So, if the working capital financing cost is borne by the franchisor, the fact has to be factored in the royalty payments due to the franchisor.

Working Capital Management: the key to Survival in the Construction Industry

Working capital management is the cornerstone of the construction industry. This, as discussed in chapter 3, is a low margin business, where the margins can get wiped out fairly fast if the projects are not executed on time and to requisite quality. The working capital requirements flow from the fact that the contractor has to show considerable progress in project execution before he can bill his client. And once the bill is raised, the client does get some time before he has to pay up.

Construction contracts are of two types- cost plus contract and fixed price contract. In a cost plus contract, the contractor is reimbursed for permitted costs (permitted as per the construction contract) plus a percentage of those costs or a fixed fee. These contracts are typically awarded for projects in which it is very difficult for the owner of the project as well as the contractor to estimate project costs upfront. This is typically the case for one-off projects or projects where the scope of work cannot be defined clearly upfront. In a fixed price contract, the contractor agrees to a fixed contract price and bears the risk of cost over runs. Typically, these projects are awarded by the owner by inviting a few chosen contractors to bid for constructing the project, after clearly describing the scope of work, the expected performance of the completed project etc. Usually the owner awards the project for execution to the contractor who bids the lowest price. Needless to say, considering the higher risks to the contractor than from fixed price contracts, they yield higher margins if the project is executed flawlessly.

In a fixed price contract, once the contract is awarded, the contract price becomes sacrosanct and few escalations are allowed. The contractor agrees to pay liquidated damages to the owner for any delay in project execution. These damages could be structured as penalty per day's delay, with or without an upper cap on the extent of damages. Damages would also have to be paid should the delivered project fall short on performance grounds. Even at the bidding stage for a project, the bidders would have to post bid bonds in the form of bank guarantees in favor of the project owner. This is to assure the owner that the bidder is serious in his bid. If a contractor is awarded the project, but tries to back out of entering into a firm contract, the project owner can cash in the bid bond. Once a project is completed, before the contractor gets his final payment, he has to post a performance guarantee bond in favor of the owner, which the owner can cash in if the project does not perform to requisite specifications. As a part of their business, contractors have to factor in bank guarantee expenses for bid bonds and performance bonds. Liquidated damages and performance bonds create contingent liabilities which will be discussed in a later chapter.

Contractors typically have more receivables than inventory (as work in progress projects are referred to in some parts of the world). Basically, the work in progress bit is the revenue the company has booked in its income statement along with associated costs, but has not billed the client for. The moment the contractor bills the client, the work-in-progress head gets converted into receivables. Because of the way the contractors book revenue on multi year projects (see Accounting Box: The Quirks of the Percentage of Completion Method Accounting), credit analysts should be wary when the work in progress head gets large, and possibly bigger than the receivables head. It could imply that the company is overbooking revenue, which it is in no position to bill on account of slow execution. Of course, it could be legitimate too- if the billing milestones of the contracts undertaken by the contractor are few and far between, it causes considerable accrual of the work in progress head in the balance

sheet. In that case, the contractor would require considerable amount of short term debt to fund the big working capital gap. That would cause expending funds for short term interest payment, which should be fine as long as it is priced into the contract.

The moment a project owner awards a project to a contractor, he pays the contractor a certain amount as customer advance. This is recognized as a current liability under the head customer advances. As the contractor starts executing the project and recognizing revenue, he writes down the customer advance. This can be an excellent source of financing for the contractors at the early stage of a project.

Accounting Box: The Quirks of Percentage of Completion Method Accounting

Construction companies, shipbuilders and home builders use the percentage completion method of accounting to recognize revenues, costs and profits. While this is a sensible method of contract accounting, the differential knowledge and information between the contractor and an auditor can make this method vulnerable to being abused. That is particularly true when a contractor executes a number of fixed price contracts and a small overstatement of revenues on each contract could translate into a large sum.

The percentage completion method works as follows: A contractor agrees to complete a big project (say a power station) for an owner for \$300 million. While bidding for the project, the contractor estimated his cost to be \$270 million. So, the contractor's estimate of project profits at the beginning of the project was \$30 million. Let us say, the project is expected to be completed in 3 years. Let us further assume, in the first year, the company has spent \$ 90 million on the project- that is one-third of the estimated total project cost. So, the contractor books as revenue one-third of the total project revenue- \$ 100 million and the expenditure of \$90 million. This results in the contractor booking \$10 million of profit before tax from the project in the first year. This is perfectly the right way of booking revenues and costs

provided the contractor is executing the project without any cost over-run. What if the project contractor has incurred a cost of \$90 million at the end of the first year, but due to cost and time-overrun has completed only 25% of the project?

IAS 11, which deals with contract accounting, is very clear what the contractor should do.

The contractor, once he knows that the contract cost is likely to exceed revenue, is required to recognize the expected loss from the contract immediately as an expense. So, if it took the contractor \$90 million to finish a quarter of project, the full project cost can be expected to be \$360 million. Since only \$300 can be billed to the client, the contractor must recognize a loss of \$60 million immediately. But the contractor can get away if he books \$ 100 million in revenues and \$ 90 in costs. It is not possible for an analyst to know what is happening in each project. In several countries, particularly those where contractors get most of their revenues from fixed price contracts, many contractors take advantage of this to overstate revenues. It works in the short run and has the potential to trap a creditor to the contractor.

As contracting is getting more and more competitive, contractors are bidding at wafer thin margins to win bids. These contracts can be executed on cost and on time only if the execution is absolutely flawless. But several events happen to militate against everything going as planned. There is however a way for analysts to catch any overbooking of revenue and under-booking of costs. In the example given earlier, if a contractor has completed only 25% of the project, he cannot bill more than \$75 million, as a knowledgeable client is likely to object. So, a contractor bent on overbooking revenues (that is \$ 90 million) will show \$ 15 million in the current assets under the head “work in progress inventory”. Now there is a genuine reason for having work in progress inventory- a contractor cannot bill a client everyday for progress in construction. Perhaps he bills the client once a month or on attainment of key milestones. But he is entitled to book revenues on the progress he has made. However, when the number of days of work in progress inventory starts hitting levels

not normally encountered in the contracting business of a country, one has to suspect hanky panky.

A genuine progress in a project results in work in progress inventory getting converted into receivables. An analyst needs to keep track of receivables from big projects in case they take too long in getting converted into cash. But the biggest worry is work-in-progress inventory. When a contractor is on a high growth path, the activities on the new projects can mask problems in projects having execution problems for quite a while. And for some time, customer advances from new projects can fund the work in progress inventory without creating liquidity problems. But the solvency issue is just around the corner when work in progress inventory piles up on account of poor project execution.

In many countries, real estate developers and home builders use (or rather abuse) the percentage completion method of accounting for booking revenues. They use this method for booking revenues on development projects even when they have not yet sold the residential apartments they have constructed. There are many known unknowns here. Will the developer be able to find buyers at the price he is booking revenues? Will he be able to complete the project to cost? The first objection is the most critical one. In 2008, most real estate developers in India were reporting huge profits using the percentage completion method of accounting for revenues even as they were defaulting on their debt obligations. The projects from which revenues were being booked had not been sold to home buyers yet- thus they were sucking liquidity and needed added debt for project completion in anticipation of sales post completion. They got into a terrible solvency crisis (not a liquidity one because there was uncertainty in the value at which the apartments would be sold). The balance sheet of most developers came under control by mid 2009 through new equity issues. But analysts in India at that time did not find the use of the percentage completion method of accounting odd.

In the US, as per SFAS 66, “Accounting for Sales of Real Estate” revenue and costs can be recognized using the percentage completion method of accounting only when the construction is beyond early stages, the buyer of the project is committed to the extent of being unable to ask for a refund (except in the case of failure of the developer to deliver), sufficient units of the project have been sold, the sales proceeds are collectible and the aggregate sales proceeds and the total project costs can be reasonably be estimated. So, for most projects, home builders in the US use the completed contract method of accounting. Revenue, expenses and profit are deferred until the completion of the contract. No revenue is recognized in the income statement- all costs and billings are recognized in the balance sheet.

India’s Construction Company Larsen & Toubro: Great Company but not a topnotch Credit

Larsen & Toubro (referred to locally as L&T) is India’s top engineering and construction company. The company has been responsible for building prominent infrastructure projects in India. It is also a player in the construction sector of the Middle-East. In the first half of financial year 2010 (year ending March 31 2010), the company secured 85% of its revenues from the engineering and construction sector. A local credit rating agency in India rates L&T triple-A for local currency debt. The company is gradually going the way of European BOT operators such as Vinci and Ferrovial by taking big stakes in infrastructure projects that it executes. That has caused the company’s debt equity ratio to increase over the last few years. That, if nothing else, should imply that L&T is not a triple-A company despite its engineering prowess. At the end of financial year 2009, the company had shareholders’ equity of Indian Rupees (INR) 139 billion and debt of INR 184 billion. By the end of financial year 2010, the debt equity ratio is likely to be skewed further towards debt. The debt equity ratio was less than 1 in 2007.

When a contractor is on a high growth path, it is very difficult for the credit analyst to tell if projects are being executed well on account of the percentage of completion method

accounting. L&T's top line in 2009 was almost 250% of that in 2006- an amazing growth as the company is best positioned to take advantage of the India infrastructure story (the construction sector has been growing 1.5 times the GDP growth). If a high growth contractor is experiencing delays and cost overruns on his projects, it is very difficult for an auditor to spot if the revenues that are being booked have really accrued and that the costs do not have a cost overrun component. If the average tenure of execution of projects is 3 years and the contractor's top line growth is greater than 33%, it is practically impossible to assure oneself that there is no overbooking of revenue. Some analysts rely on faith to do their credit assessment in those cases (such as the faith based valuation of Level 3 assets of banks in the pre-credit crisis era) - definitely not a happy place to be in. The analyst can get around this by asking the contractor what the frequency of billing for typical projects is. While there might be difference between work in progress and receivables on individual projects, when agglomerated over many projects under execution, the number of days of work in progress inventory should not be more than the average number of days between billing. If the work in progress inventory is too high, growth could be masking cost overruns and overbooking of profits. Even in cost plus contracts, the project owner is not responsible for cost overruns due to poor execution.

As on 31st March 2009, L&T had about 49 days of work in progress inventory on its construction projects. Typically, this should not be more than 30 days. That excess 19 days translates to almost INR 18 billion in revenues. An added point that must be kept in mind by creditors of construction companies is to take a close look at receivables greater than 90 days. It could be because the customers have not acknowledged that work has been completed on the ground to justify the billing- which means that the revenues booked are suspect. It is no one's case that the project owner is always right. But a credit analyst would do well to assume that is indeed the case. It could also be because the project owner is experiencing

financial stress and wants to delay payment- which is not good news for the contractor's creditors. Unfortunately, Indian contractors do not report in their annual reports receivables more than 90 days. They report receivables which have been due for more than 180 days. L&T had INR 24 billion of receivables more than 180 days which it considered collectible. When one adds the "excess work in progress" inventory to receivables due for more than 180 days (90 days should be the correct metric, but that number is not disclosed), one gets INR 42 billion. L&T's operating profit in financial year 2009 was INR 55.5 billion, while its shareholder equity was INR 139 billion. Because these contracts pertain to multi year transactions, one should not deduct the possible excessive revenue booking from the operating profit but from shareholder equity. When one reworks the debt equity ratio post this adjustment, the debt equity ratio, already unflattering, looks even uglier. This does not mean L&T is in danger of defaulting on its debt. The company does have an impressive track record of project execution on schedule and without cost overruns. But analysts, over the next few years, should pay close attention to the company's revenue booking and burgeoning leverage. The business in India for contracting will get more competitive in the years to come, as western contractors, with very little business opportunities in their home terrains will crowd in. Being leveraged, and hence having low financial flexibility might not be the best place to be in to meet this coming challenge.

The scale of overbooking of revenues in the Indian construction industry among lesser contractors, over the last few years, seems high. Credit analysts should closely question the managements of construction companies such as Hindustan Construction (HCC), Punj Lloyd and Nagarjuna Construction on their work in progress inventory, billing cycles and receivables greater than 90 days. Auditors have already passed qualifying remarks on Punj Lloyd's earnings. The situation gets even murkier on account of the fact that many contractors have real estate arms, where the opacity of accounting gets worse.

Flour's reliance on Cost-plus Contracts impacts Margins but is good for the Credit

US based Fluor Corporation is one of the world's largest engineering, procurement and construction (EPC) companies. It traces its origins to 1912. The company gets a chunk of its revenues from projects in the oil and gas sector as well as the industrial and infrastructure sectors. The only area of concern regarding the company is its low presence in the Asia Pacific region which would be the region where most of the construction contracts are going to be awarded in the medium term. Its biggest competitors in the US market for mega projects include privately held Bechtel, Foster Wheeler, Jacobs Engineering and Black & Veatch.

Fluor is one of the strongest construction companies financially. It carries low debt on its balance sheet. Because of the way the company has been managing its working capital, it has no need for short term funds. The advances that the company receives from customers and other current liabilities exceed the sum of work in progress inventory and receivables. Additionally, the company has a healthy cash balance for managing short term contingencies. The company's contract work in progress inventory has been fluctuating between 16 to 20 days recently. It also collects its receivables fairly soon after billing- in 2008, the company collected its bills within 20 days of billing. This rules out the possibility that the company is overbooking revenues.

What are the risks in this company over the medium term? 76% of the company's contracts are cost reimbursable, while 24% are fixed price contracts. In the former contracts, payments are made to the contractor on achieving milestones. As long as the execution of the contract is alright, there are no risks from miscalculating contract costs. Many contracts, particularly government contracts are "indefinite delivery, indefinite quantity" (IDIQ) contracts- where the contractor works closely with the project owner to scope the contract. Cost plus contracts have lower margins than fixed price ones, but the risks too are far lower. From a

creditor standpoint, they are superior. The only unknown in Fluor is contingent liabilities from posting performance guarantees on completed projects. Contingent liabilities to many US contractors have come from violating the US Foreign Corrupt Practices Act, 1977. Houston based contractor Kellogg, Brown & Root had to pay a \$403 million criminal fine for bribing Nigerian authorities to secure an EPC contract. Fluor has never had such a problem. A small added risk is on account of the company's professional liability insurance coverage being on a "claims made" basis which covers only claims made during the insurance contract period and not events which occur during the period. Extended period of slow growth in developed countries will not affect Fluor too much on account of the company's low debt servicing requirements and flexible cost structure (a sizeable portion of employees work on an hourly basis).

Correct Inventory valuation determines Shareholders' Equity at Toll Brothers & KB Homes

The biggest risk carried by US homebuilders like Toll Brothers and KB Homes is the inventory of homes carried on their balance sheet. In times of rising home prices, the risk is usually underestimated by all market players. Likewise, after a period of falling home prices, the risk is overestimated. In reality, the risk is misstated in both cases. A credit analyst should be more comfortable with inventory valuation after a few years of home price correction than after a few years into a period of sharply rising home prices. A gaze at societal debt ratio would provide some warning signs on home prices hitting dangerous levels. It is not for a creditor to bet on home prices, so when the warning signs are there, it is better for the creditor to pare his exposures rather than try to predict when the downturn in home prices will arrive.

Post a period of sharply rising prices, home prices in the US started stabilizing in 2006 and falling from 2007. A creditor should feel more comfortable with stated inventory value in the 2011 annual report than the value stated in the 2009 annual report. A home owner who

has bought a home in a project of luxury home builder Toll Brothers pays only a fraction of the project cost at the beginning. The customer retains the right to cancel the booking for the home. The customer might have to forfeit his initial deposit (which is good for creditors because it can be used for asset impairment charges if the home is sold later at a lower price), but in many cases, the customer can secure a refund of the deposits based on state laws or because of failure to secure financing. When home cancellation rates rise and inventory of unsold homes goes up, it puts further pressure on home prices.

Toll Brothers designs, builds and sells single family luxury homes. Inventory of homes is the biggest item on the asset side of its balance sheet. In 2007, inventory was carried at \$5.57 billion when total assets were \$7.2 billion. In 2008, the inventory value and total assets fell respectively to \$4.13 billion and \$6.6 billion. The company took inventory impairment charges of \$688 million in 2007 and \$849 million in 2008. The sensitivity of the company's business to home prices is evident on the earnings and business front as well. The value of new contracts signed in 2008 declined by 47% versus 2007 on account of a 34% decrease in number of contracts and a 19% decrease in the average value of the contracts signed. So, not only does the balance sheet weaken, the earnings profile also deteriorates at the same time. A comforting feature of the accounting of real estate players in the United States is that they predominantly use the completed contract method of accounting as opposed to the percentage completion method prevailing in many countries (see the Accounting Box: The Quirks of Percentage of Completion Method Accounting). The credit analyst needs to focus only on the inventory carried value and not worry about adjustments in the income statement.

Toll Brothers' backlog of orders fell from \$2.85 billion in 2007 to \$1.33 billion in 2008. Between 2005 and 2007, the cancellation of the backlog was around 20%. The good thing about the Toll Brothers' balance sheet is that it is not too leveraged- at the end of 2008, the company had \$ 3.3 billion of equity supporting \$6.6 billion in assets. So, the company did

have some headroom for further inventory write down. Also, the company had room to adjust its cost structure in line with likely far lower revenues in the next many years.

Customized home builder KB Homes does not have such a luxury. At the end of 2008, post asset impairment charges, the company had \$830 million of equity supporting a \$ 4 billion balance sheet. Inventories, which were around 50% of the company's balance sheet, seemed ripe for further write down. The company had already taken inventory impairment charges of \$1.1 billion and \$565 million in 2007 and 2008 respectively. Creditors might want to look at the financials at the end of 2010 before they take a further credit call on the company.

Korean Ship Builders and the Art of managing Working Capital

Shipbuilding is like construction contracting in some respects. The projects get executed over several years. So, ship builders, like contractors, book revenue using the percentage of completion method accounting. However, there are some critical differences as well. Since the last downturn in the industry beginning in 2003, when cancellations of orders under execution put the shipbuilders in a pickle, ship builders now insist on substantial advance payments and payments in fewer installments. Moreover, if ship owners cancel their orders in between, vessels such as VLCC, Aframax, Panamax, are fungible and can be sold easily to a third party. If a contractor is building a refinery for a owner in a god forsaken place in the middle of nowhere and the project owner goes bust, and is unable to pay for past execution, the half built project cannot be sold to a third party readily.

The ship building industry is gradually becoming an Asia-centric industry, with South Korea, Japan and China dominating the field. At the very low end of the shipbuilding industry, cheap labor is the only thing that matters- hence it will be difficult for other countries to compete with China. According to leading shipping services company Clarksons, for the period ending September 2008, China had a market share of 48% in the construction of low end bulk carriers. Korea and Japan each had a market share of 22%. As per the same source,

in the area of tankers, South Korea had a 51% share while China had a share of 27%. In the area of container vessels, South Korea was overwhelmingly dominant with a 60% global market share. European ship builders such as German shipbuilder HDW can compete only by being the BMW segment of the business by producing innovative high quality products. This occurs in the areas of luxury cruise liners and vessels used by the defense industry such as submarines. But they must continuously watch out for shipbuilders from Korea attacking them from the bottom up.

In the mid segment it is very difficult to see a disciplined people like the Koreans, who work long shifts, thus driving down project execution times (which is a key benefit for customers who can quickly take advantage when the Baltic dry index goes up) facing competition from countries where people clamor for 35 hour work weeks. Also, since the skills required are substantial, it can't be supplanted by a prison work force on low wages.

At the other end of the spectrum, it seems that Japanese shipbuilders, with a rich and illustrious past are going to fade into the sunset, squeezed from all sides. Kawasaki Heavy Industries, founded in 1878 is in a parlous condition. Because shipbuilding constitutes a smaller percentage of sales, they do not have the trim capital structures of the Korean shipbuilders. Kawasaki's debt equity ratio was 119% in financial year ended April 2006. During the next few years, due to the global bubble economy, Kawasaki was able to generate free cash flows to bring down its debt equity ratio to 75% for the year ended April 2008. At the first whiff of trouble, the company's operating cash flows disappeared and the debt equity ratio climbed to 123% for the year ended April 2009. Hitachi Zosen sensibly sold its ship building operations to a joint venture with NKK Corporation called Universal Shipping Corporation. Mitsubishi Heavy Industries is also not likely to last in this business for much longer. The company, which has been building ships since 1884 in a previous avatar, is plagued by deteriorating financials.

Would Hyundai Heavy Industries be affected by the slowdown in Demand?

Hyundai Heavy Industries was established in 1973. At the beginning of 2009, shipbuilding, along with its allied industry, off-shore engineering, contributed 62% of the total sales of the company. The company has a unique capital structure. At the end of the first quarter of 2009, the company had a debt equity ratio of only 9.5%. But it had a liability to equity ratio of 354%. These huge liabilities were not some horrid stuff like pension liabilities that plague a lot of firms, but “good liability” in the form of customer advances, which overwhelmingly dominates the balance sheet. Of the total assets of 27 trillion Korean Won (KRW), the company’s current assets at 13.7 trillion KRW were almost 50% of the balance sheet. The company’s current liabilities amounted to 17.8 trillion KRW on account of customer advances of 10.2 trillion KRW. Receivables and Inventory amounted to 6.7 trillion won- so the cash flow generated from this negative working capital can be deployed productively. Of course, if new orders slacken, the customer advances would slacken more than slackening of inventories and receivables- creating the need for debt.

Because of the float generated by customer advances, the company’s debt equity ratio fell from 4.3% in 2006 to 0.1% in 2008. The liability ratio on the other hand jumped from 200% in 2006 to 352% in 2008, on the back of increased orders and customer advances as well as, in 2008, due to the sharp deterioration in the value of the KRW.

Clearly, in this business, cash flows improve and debt goes down in an upturn (opposite of normal industries in their expansion cycle due to the negative working capital intensity of the business). Operating margins fell from 11.2% in Q1 2008 to 8.6% in Q1 2009. Samsung Heavy Industries had a similar albeit slightly inferior credit profile. On the back of customer advances, the company’s debt equity ratio remained low around 7% from 2006 to 2008. At the end of 2008, its customer advances were 8.6 trillion KRW as against inventories and receivables of around 5 trillion KRW. Hanjin Heavy Industries, because of the fact the

company gets a chunk of its revenues from construction, had a positive working capital gap. Shipbuilders get speculative orders during upturns which get cancelled during the downturn, thus increasing liabilities from hedging contracts such as foreign exchange forward liabilities. On a separate matter, the ship breaking industry, unlike the ship building industry, is completely driven by two factors- abundance of cheap labor which is indifferent to its health, and poor implementation of environmental standards. Both these factors are met in the Indian state of Gujarat, the location of several hazardous chemical industries and the location of some of the most polluted spots on the face of the earth. It is hence no surprise that the largest ship breaking yard in the world is located at Alang in Gujarat.

Inventory Management in Industries with short Inventory Shelf Life

A hotel room and an airline seat are fast perishable inventory- if not converted into receivables/cash during the course of a day, they lose all their value. In response to low demand, airlines can cancel flights but hotels do not have the luxury of moth balling their operations for a day. Flights can be cancelled to remove inventory without incurring variable costs- fixed costs remain. In the case of a hotel nothing can be removed- capacity cannot be temporarily killed.

The owners of high end hotel chains face a great dilemma- if they do not generate any revenue from a hotel room by the evening, the potential revenue would be lost forever. From a short term perspective, the hotel owners might be better off resorting to sharp discounting, as any revenue generated above the negligible variable costs would be useful- but that can hurt long term brand equity. The owners of budget hotels, who do not have to give an arm or a leg to protect their brand, can resort to such last minute discounting.

Since many of the high end hotel chains are resorting to an asset light strategy, wherein they rely more on brand value and fees generated thereof, they cannot afford to have

indiscriminate price reductions to off load inventory at sharply reduced prices . For Hotel Intercontinental, the owner of brands such as Intercontinental, Crowne Plaza, Holiday Inn etc, at end of 2008, 75% of the group's rooms were franchises, 24% were managed and properties owned or leased amounted to only 1%. So the value of the company to shareholders rested strongly on its brand valuation, which helps to generate franchise fees and management fees. Starwood, owner of luxury brands such as St. Regis and upper scale hotel brands such as Sheraton and Le Meridien is also moving in the direction of an asset light strategy. At the end of 2004, the company owned 56% of its hotels. By 2008, the percentage of owned hotels dropped to 33%. The company's vision was to get this number to less than 20%.

Does the asset light strategy make sense? Gradual commoditization of rooms through internet booking and increase in the relative importance of personal travel as opposed to business travel might see forced correction in average room rents in the years to come. The value of the brands, under such a scenario, would come under stress.

The Impact of the Vacation Timeshare Business Inventory on Hotel Industry Credit Quality

In the hotel industry, while considerable attention is paid to the inventory of hotel rooms available daily, sufficient attention is not paid to the "time sharing/ fractional ownership" business of the hotel chains. This has grown to be fairly important for hotel chain financial analysis over the last two decades. Because a considerable amount of debt financing is involved in the timeshare business, it is no surprise that the business' prosperity in the United States coincided with the sharp increase in household debt. In 1983, US household debt was 46% of GDP- this jumped to more than 100% a quarter of century later. The number of timeshare resorts of the Marriot group jumped from one resort in 1984 to 67 resorts over the next 25 years.

The time share business model confers part ownership or right to the use of a property, typically a vacation home or a facility in a resort. In the case of Starwood's vacation ownership business, a buyer is typically entitled to buy ownership of a fully furnished resort unit for a one week period annually, and in the case of fractional ownership interests, for three or more weeks. Multiple parties hold rights to use the property and each part owner is allotted a period of time during the year in which he may use the property. The timeshare rights can be resold. Over a period of time, the big hotel chains such as Starwood, Hilton and Marriott became big players in the time share business. Because the big chains have adopted an asset light strategy by not owning the hotel properties that they manage, time share property building constitutes a big chunk of their capital invested. For instance, Marriott owned less than 1% of the hotels it manages or franchises. Marriott recorded timeshare assets on its balance sheet of \$3.6 billion out of total assets of \$8.9 billion in 2009- around the same as the previous year. At Starwood, vacation ownership inventory was carried at \$729 million out of total assets of \$9.7 billion.

Since the sale of timeshare and fractional ownership follows the percentage completion method of accounting, soft demand and delinquencies are not reflected in the business results of this segment until later accounting periods. In times of economic stress, there are delays in projects hitting revenue recognition thresholds on account of the low customer interest or slowdown and delays in construction. Most timeshare operators recognize sales when they have received a certain minimum amount of the purchase price (usually 10%), the purchaser's right to refund has expired (though the purchaser's right to default on the loan he has taken from the time share operator does not expire- the risk merely becomes smaller over time as the timeshare owner builds equity in the asset) and the project has reached a certain minimum implementation level. Marriott in 2008 recorded \$324 million less timeshare revenue than 2007 in a deteriorating economic environment (in 2008, out of the company's

approximately \$12.9 billion in revenues, \$1.75 billion came from timeshare options. At Starwood, the fraction was \$749 million out of \$5.9 billion). This inventory stands the risk of losing value and facing write down. There could also be a charge on account of reduced valuation of residual interests in sold timeshare projects. Additionally, during stress periods, even in projects that have crossed revenue thresholds, there is lower revenue because of client cancellations. Decrease in real estate and vacation home prices reduces profits on sales (there could even be a loss). During slowdowns, the inventory does not move fast and increases carrying costs for the timeshare operator. Inventory of unsold timeshare properties drag down earnings another way- they continue to consume cash for maintenance. A timeshare operator also records a contract cancellation allowance in anticipation that a portion of contract revenue booked under the percentage completion method accounting would not be realized due to contract cancellations before closing. And decisions not to develop planned timeshare projects could also be costly- Starwood took an impairment charge of \$75 million in 2008 because of its decision not to develop two timeshare projects in a worsening economic environment.

Timeshare operators incur considerable marketing costs to sell time shares, a portion of which is expensed as incurred and another portion is deferred. Marriott had deferred costs of \$7 million at the end of 2008, which it recorded as part of current assets. Starwood capitalizes direct costs attributable to the sale of its timeshare assets until the sales are recognized. If a contract is cancelled, the company charges the unrecoverable direct selling and marketing costs to expenses and records the forfeited deposits for the purchase as income.

The time share business involves providing financing to customers. Loans outstanding to timeshare owners at Marriott amounted to \$607 million in 2008, up from \$408 million in 2007. That is what generates the sales. Marriott had estimated the losses on such loans at

\$35 million and \$19 million respectively in 2008 and 2007. This number is expected to go up in the coming years as households clean up their balance sheets and creditors write down receivables. Starwood estimated a default rate of 7.9% on its vacation ownership assets at the end of 2008. The company estimated that a 0.1% change in this estimate would have a \$ 3 million impact. So the outcome might not be a happy picture if there is a precipitous increase in delinquencies. At the end of 2008, the company had receivables of \$581 million, of which \$91 million was deemed unrecoverable.

Companies are supposed to deduct from their revenue any uncollectible loans that they had given to buyers of timeshare facilities the moment they start recognizing revenues. The companies sell the timeshare loans in the securitization market. When the securitization markets freeze, it inhibits the financing of the timeshare ownership, which in turn impacts sales. Additionally, companies use interest rate derivatives to hedge the risk from the residual interests (Marriott recorded the fair value of its retained interests at the end of 2008 at \$221 million) retained by the timeshare originator, which adds to the risk of the product if the hedging has not been done correctly. In 2008, Starwood recorded an impairment charge of \$22 million related to the fall in the value of retained interests.

As hotel operators adopt the asset light strategy of not owning the hotels they manage or franchise, asset creation has recently happened in the area of timeshares. These assets include loans to customers for buying timeshare properties. Because these assets are becoming a bigger and bigger portion of the balance sheet of those companies, any change in the valuation of unsold inventory of timeshare property as well as any increase in timeshare loan write down can cause sudden jump in the debt equity ratios of those companies on account of the thin sliver of shareholders' equity present in most hotel company balance sheets.

Liabilities from Customer Programs should be viewed as Current Liabilities for Credit Analysis

Almost all the leading hotel chains have loyalty programs through which customers earn loyalty points every time they stay at the hotel. The conditions attached to redemption of these points vary from hotel chain to chain. In some cases, the points are redeemable while using services of third parties such as airlines. Irrespective of the terms and conditions of loyalty programs, they create liabilities on a hotel chain's balance sheet.

The liabilities from the loyalty program is recognized, through actuarial estimate, by taking into account factors such as timing of redemption (based on past redemption pattern) and breakage (i.e. points that are never redeemed thanks to customer laxity). A portion of these liabilities sits under the current liabilities section (basically, the costs that are likely to be incurred due to redemption of points within a year of the date of the financial statement) and the balance under the head "Non current liabilities".

Loyalty programs have the same effect as offering a discount on room tariffs but they have a few advantages over room tariff discounting. They would usually achieve the aim of the program by binding a customer to a particular hotel chain. Secondly, offering discounts on room tariff, to clear the unsold inventory of vacant rooms can destroy the brand value of leading chains.

Since many of the hotel chains are not exactly in prime credit condition, frequent travelers should be aware that there is a goodish chance that a bankruptcy court in future could cancel these liabilities. But from the perspective of a credit analyst, these liabilities themselves can be quite onerous and can drive a chain into fiscal trouble. Even short term creditors need to look at the liabilities from this program wholly, and should not think that they can get away with looking at the current liabilities portion. There is always the risk that should a hotel chain display signs of financial stress, the customers holding loyalty points which would

normally have been redeemed over a period of time, rushing to cash out, thus precipitating a downward spiral earlier than expected. So, what was actuarially deemed to be a non current liability might end up becoming one. Should creditors draw comfort from the airline industry where there was no mad rush to redeem frequent flier points as the airlines were heading to bankruptcy? It is hard to say.

Consider Starwood hotels- at the end of 2008, the total liabilities from the loyalty program amounted to \$ 662 million. Of this, \$ 232 million were included in current liabilities. This was a fairly sizeable portion of shareholder equity which amounted to \$ 1.6 billion. Hotel Intercontinental had practically wiped out its shareholder equity by the end of 2008. But it still had \$ 471 million of loyalty liabilities. Marriotts' balance sheet was more interesting. It just had \$ 1.4 billion in equity supporting a balance sheet of \$ 8.9 billion. Liabilities from the guest loyalty program amounted to more than \$ 1.5 billion.

The Real Inventory of the Airline Industry

Every day, at midnight, an airline has the capacity (from owned and leased aircraft) to fly a certain number of passengers for a certain number of kilometers without compromising customer safety or customer experience. By midnight next day, any plane that did not fly an optimal number of hours, or, for the hours it flew, did not have a plane load of passengers, would have forever seen a write-down of inventory from the previous midnight. At midnight on the previous day, the airline had a certain number of seat kilometers available (number of passenger seats available multiplied by the maximum possible kilometers the planes could have flown on their routes). This is referred to as available seat kilometers- the real inventory that an airline has – not the sundry details it reveals in its balance sheet in the form of airplane spares, fuel inventory etc. By midnight the following day, this available seat kilometers (ASM) per day needs to be converted into hard revenue. Else, the available passenger seat kilometers would have to be written off for good.

Of course, if demand is abundant, the airline can load up the planes to the maximum extent and charge the customer what the market can bear. What if demand is less than abundant? Decisions on whether to cancel flights will have to be taken. The decision is governed by whether through flying the passengers who are willing to fly, the airline can cover its variable costs- fuel costs, variable portion of crew pay etc. If the airline cuts the ticket price, more people would be willing to fly, causing the revenue, the product of passenger ticket and number of passengers to go up. There is a certain price level at which the revenues can be optimized. The airline, if worried about long term brand value, might choose not to maximize short term revenue. Whether the airline flies an airplane on a given day or not, fixed prices connected with the airplane such as capital costs would continue to be incurred. So, the aim of airline management is not only to increase passenger load factor, but also revenue. In the medium term, capacities might have to be permanently withdrawn by returning airplanes on operating lease. For instance, in its annual report of 2008, Southwest Airlines, the only investment grade US airline, planned a 4% reduction in average passenger mile during 2009. That would result in a concomitant reduction in fixed costs and a greater likelihood that the airline would make better use of its daily available seat-mile inventory. As operating expenses per seat mile go up, the minimum revenue required from passengers for a flight to be viable goes up, i.e. break even passenger load factor goes up. Ultimately optimal use of the airline seat-mile inventory over time is what optimizes the return on capital employed for an airline.

Singapore Airlines' superb Working Capital management brings down its Gearing

It is well known that Singapore Airlines is one of the best run airlines in the world. In an industry inhabited by companies which either have no clue about operational excellence or ravaged by union intransigence or managements confused about their business models, Singapore Airlines comes out as a shining beacon.

The company's operational excellence translates into high profitability. When this profitability is combined with its negative working capital requirements, it is a recipe for ever lower amount of capital to be deployed vis-à-vis the scale of operations. Airlines typically have negative working capital requirements because customers pay for their travel before fuel suppliers have to be paid. But this benefit does not accrue to airlines which are not profitable. They get into a vicious cycle. These airlines have to service their airplane lease rentals (because of their weak profitability, no one would provide financing to these airlines for buying planes) and other fixed expenses before resources are available to ensure customer satisfaction. Suppliers of fuel would be wary of providing credit to those airlines for extended periods. In the extreme case, fuel suppliers would require letters of credit or other risk mitigants before they supply fuel. That results in added costs and forgoing of the benefit that accrues from having to pay for fuel later. This in turn requires short term financing (in ever increasing amounts) until bankruptcy puts those companies out of their misery.

Singapore Airlines does not have any short term debt. At the end of March 31st 2004, the company had a debt equity ratio of 0.2. At the end of March 31st 2008, this ratio had fallen to almost 0.1. The company had current liabilities of Singapore Dollar (SGD) 5.96 billion. It had current assets of SGD 8.3 billion, but when cash and marketable securities were deducted from those assets, the effective current assets were only SGD 2.7 billion. Fuel suppliers to Singapore Airlines are in fact providing short term financing to the company for free. This virtuous working capital cycle will come to an end only when Singapore Airlines takes its eye of the ball and resorts to financial engineering as opposed to excellent customer service. Only then would fuel suppliers be worried about its credit standing and the virtuous cycle would turn vicious.

Accounting Box: Does the Cash Flow Statement tell the Analyst anything new?

The fetish for the cash flow statement displayed by a number of credit analysts is difficult to comprehend. It might be useful to the equity researcher for his discounted cash flow analysis (DCF), if you believe DCF is a meaningful pursuit. Sustainable competitive advantage can be gleaned from the credit/equity story and the income statement and balance sheet (in terms of return on capital employed). The cash flow seems like an entertaining diversion. We wonder if equity analysts ever revisit their cash flow forecasts for DCF analysis a year later to check if the actual free cash flow had any semblance to their projected free cash flow. And the further out into the future these cash flows are projected (to the end of time, or so the theory goes), the more stark the departure from reality.

Anyway, for a credit analyst, the cash flow does not tell him anything new if he has grasped the income statement, the balance sheet and has tied the two statements to the credit story. And if he has not grasped the message from those statements, he will not be able to glean much from the cash flow statement. After all, the cash flow is derived from balance sheet and the income statement, and is a reconciliation statement between of cash in a balance sheet at the end of the previous year to the cash at the end of the current year. The operating margins, gleaned from the income statement, give one an idea of the competitiveness of the company vis-à-vis its competitors. The balance sheet lets an analyst know of the capital efficiency in securing the returns. Capital efficiency means using as little long term sources of capital (implying efficiency of capital expenditure) and as little short term debt as possible (implying efficient working capital management).

The theory that the cash flow statement is useful because it permits “comparability of the reporting of operating performance by different entities because it eliminates the effects of using different accounting treatments for the same transactions and events” is dubious. An analyst who has understood the underlying credit story would automatically be able to handle

the different accounting treatments (anyway, the world is gradually moving towards reconciling the different accounting standards). And if you are just going to look at the financial statements without having understood the prose and poetry of the credit story, there is a real danger, at some point in time in the near future, your job might be taken over by a trained monkey or a computer program.

However, there is no harm in having a quick glance at the cash flow statement, particularly if the cash flow statement has been presented using the direct method. Both IAS 7 and SFAS 95 encourage the usage of the direct method, wherein major classes of gross cash receipts and gross cash payments are disclosed. Unfortunately, most companies report their cash flows using the indirect method which merely adjusts the income statement for non cash transactions. When presented using the direct method, all an analyst needs to do to get operational cash flows is to subtract from cash received from customers the sum of cash paid to suppliers and the interest paid on working capital loans. The interest paid on long term loans should be considered in financing cash flows, unless the interest is paid by the financing arm of a manufacturing company. Then the interest paid on long term debt is also part of operational cash flows. The investing cash flows are basically increase/decrease in non current assets and the financing cash flows are the increase/decrease in non current liabilities.

Another dangerous notion often talked about is, if operational cash flows are good, all is well. In industries where high capital spending is initially done, the year after capital expenditure is completed, high operating cash flows might occur because of higher sales. Sales might not cover full costs (depreciation costs etc). When sales do not result in full return on capital, debt servicing over a period of time is not assured, despite operational cash flows.

In some circles, particularly where a lot of fee based incomes are at stake based on fructifying lending transactions, Earnings before Interest Tax and Depreciation (EBITDA) is considered

as a proxy for operational cash flows. If this metric is used by anyone other than rascals trying to make a quick buck, one has to wonder if the user of such metric has any idea about fundamental business realities. It ignores the fundamental tenet that a company can earn its way to bankruptcy if it does not collect its receivables, replace depreciated assets or pay the payables before cash is available for interest servicing. If EBITDA is nonsense, so is any ratio derived using it such as Debt to EBITDA. This lesson has not been learnt even though it has been almost four decades since the bankruptcy of US railroad company Penn Central. Penn Central conserved cash by not doing the necessary capital expenditure. Because of this, its tracks deteriorated and the trains had to run at reduced speeds. This delayed shipments and caused personnel to work overtime- further bloating costs. Derailments and train wrecks occurred frequently. Penn Central also used short term debt to finance long term assets. But thanks to low capital expenditure, for a while, its EBITDA was strong.

Key Takeaways from this Chapter

A high return on capital employed is an illusion if it is accompanied by inefficient or fraudulent working capital management. If receivables or inventory keep going up disproportionately with growth in sales, ever increasing amount of capital would have to be deployed for financing this working capital requirement. When the increased capital requirement comes from higher and higher amounts of short term debt, trouble could loom in the horizon.

If receivables of a company are going up relative to sales, it could imply one of three things. Firstly, it could be because the company is extending longer periods of credit to its customers in order to secure sales. That could be on account of the company's products not being that exciting vis-à-vis the products of competitors and hence needs to extend longer periods of credit to push sales. In that case a credit analyst needs to ask himself if the company's credit story is over. Secondly, it could be because the company's customers are experiencing

financial stress and are unable to pay up on time. That is also not good news because it could require write down of receivables and fall in future sales. Finally, the rise in receivables could on account of fraudulent sales being booked to overstate reported revenues and earnings, either to keep financial markets happy or to satisfy some loan covenant linked to EBITDA (why lenders link their covenants to an eminently malleable number such as the EBITDA is a separate tale).

Raw material inventory levels are coming down across industries on account of efficient supply chain management. However, the credit analyst should check and convince himself that the supply chain is not too stretched. Also, it needs to be verified that the company's profitability has not been secured by arm twisting suppliers, whose falling into bad times due of this can put the company at peril. LIFO accounting of raw material inventory is more conservative than FIFO accounting in times of high inflation. As manufacturing processes get more efficient, the work in progress inventory has been coming down. An analyst should verify that work in progress inventory in industries using the percentage completion method accounting is not an artifice for overstating revenues. Finished goods inventory should be low, particularly in industries such as fashion retailing because the inventory can lose value fairly sharply in response to changing fashion tastes. In those industries, it might be better to convert inventory into receivables of questionable quality rather than carry it as inventory.

In the case of payables management, the cardinal rule is do no harm. Delaying or stretching payments to suppliers is not a sustainable way to manage cash flows. Payable days out of sync with industry norms should be clearly explained. In industries with negative working capital days, the credit analyst should understand that while this is a good position to be in, it might not be sustainable for a loss making company. In the case of negative working capital industries, the cycle of conversion of inventory to receivables to cash for paying the supplier does not exist. The supplier draws comfort from the overall profitability of the company he is

a supplier to. The moment that is called to question, supplier forbearance cannot be taken for granted.

Chapter 6 Contingent Liabilities, Contingent Assets & Contingent Margins

The Statement of Financial Accounting Standards (SFAS) No.5, titled “Accounting for Contingencies” of the US Financial Accounting Standards Board (FASB) defines a contingency as an existing condition, situation or set of circumstances involving uncertainty as to possible gain (“gain contingency”) or loss (“loss contingency”) to an enterprise that will ultimately be resolved when one or more future events occur or fail to occur. Resolution of the uncertainty may confirm the acquisition of an asset, the reduction of a liability, the loss or impairment of an asset or the incurrence of a liability. The standard goes on to give examples of contingencies such as collectability of receivables, obligations linked to product warranties and product liabilities, losses insurable with a P&C insurer and guarantees (see Accounting Box: What the Accounting Standards say about Contingencies” for more details).

Contingent liability is an area that credit analysts practically pay no attention to when analyzing a company. Yet contingent liabilities can cause companies to suddenly self-destruct. The understanding of the likelihood of a contingent liability crystallizing into an actual liability flows from an understanding of the underlying credit story. If an analyst had understood the credit story of the bond insurers, he, unlike the rating agencies, would not have been surprised when they blew up within a year of sporting triple-A credit ratings.

Changing business models are introducing a lot of contingencies in the operating margins of several companies. Earlier, technology hardware companies would just sell their devices with a basic warranty. Then it was possible to estimate the losses that would accrue from the warranty and factor it in while calculating operating margins and return on capital employed. Now companies are adding extended warranty contracts with the basic warranty. Of course, the companies charge the customer upfront for providing the extended warranty. How sure is the analyst that these future liabilities are being priced correctly? Can the analyst vehemently

assert that the company is not generating cash flow and “apparent profitability” by underpricing these liabilities, thus attracting a lot of customers to the extended warranty service? It is an issue that credit and even equity analysts must pay attention to as the percentage of revenue from services linked to manufactured goods constitutes a bigger and bigger proportion of revenues.

Product liabilities for pharmaceutical products, contrary to their reputation, are not as big a threat to a creditor unless the creditor took on venture risk by investing in the 30 year bond of a company. Product liabilities usually provide the creditor some advance warning that it is time to exit. The moment people start talking about possible damages on account of the product liability, the bell has tolled and the creditor should be looking at where the exits are for water landing. If a big lawsuit emanates from a product liability, it would definitely go through several rounds of appeal at the courts providing priceless time and operational cash flows that cannot be sequestered for meeting potential liabilities. And when the liabilities do crystallize, a substantial chunk of the money required would come from the liability insurers. It will be a while before it puts the insurer out of business as the asbestos liability cases demonstrated. But such severe liabilities are not every day occurrences. The companies exposed to asbestos liabilities serviced their debt for a considerable period after the liabilities became known.

Product recalls are slightly different animals. They can crystallize into actual cash outgo in the immediate future and can put stress on the short term finances of a company. Product recalls have to be kept in mind when calculating the past operating margins of manufacturing companies such as the auto companies.

Accounting Box: What the Accounting Standards say about Contingencies

SFAS 5 is the relevant accounting standard in the United States for reporting contingencies. For IFRS countries, the relevant equivalent is International Accounting Standard (IAS) 37, “Provisions, Contingent Liabilities and Contingent Assets”. The former document is more lucid, with clearer examples to facilitate understanding.

The gist of SFAS 5 is that some liabilities have to be accrued in the income statement, while others have to be disclosed. A loss contingency has to be accrued if it meets both of the following conditions- it is probable the loss would occur and the amount of the loss can be reasonably estimated. If both these conditions are not met, the disclosure of the contingency has to be made but it should not be accrued. There are several technical points such as a loss arising after the date of financial statements, but the key issue for a contingent loss is whether it should be accrued or only disclosed. The standard also talks about gain contingencies, but by its very nature, gain contingencies cannot enter the realm of thought of a credit analyst. They are the province of the shareholder who reaps such benefits.

Contingent gains do sometimes change a credit story. Witness the \$ 2 billion paid by General Motors to Fiat of Italy to get out of a put option on Fiat shares in 2005. The money changed Fiat from a basket case to a potentially viable company, while hastening General Motors’ inexorable march to extinction. But a creditor should not be lending based on such unexpected showers of blessings until the mercy drops have fallen.

SFAS 5 highlights an important issue which must be kept in mind by credit analysts, particularly those who just look at a company’s financials in the spreadsheet format and quickly pass judgment on whether the company is worthy of credit investment or not. The issue is whether a company insures its property against risk of damage as well as whether the company has insurance policies against product liability from injury to consumers from using its products. Two companies are alike in their financials and business prospects- one insures

against property damage and product liability- the other does not. Obviously the credit analyst cannot treat the companies on par as the uninsured company is exposing itself to sudden cash flow shocks.

For a given lawsuit, you could have a mixture of accrual as well as disclosures about potential losses. For instance, if a company is almost certain (probable is the word SFAS 5 uses) that the damages from a certain claim would be at least \$ 2 million, but does not know with certainty how much more than \$ 2 million, the company needs to accrue the loss of \$ 2 million in its income statement and disclose the rest. From the principle of conservatism of financial statements, SFAS 5 requires accrual the moment the loss is probable and not wait until it is certain even though the probable loss can be more reasonably estimated in the second case. IAS 37 requires that contingent liabilities get converted to provisions the moment the liabilities become probable and a reliable estimate of the obligations can be made.

IAS 37 talks about an “onerous contract” in which the unavoidable costs of meeting the obligations under a contract exceeds the economic benefits expected to be received under it. An onerous contract causes the operating margins to be lower than what was initially projected. In the case of construction contracts, the performance guarantees supplied by a contractor could cause a contract to become an onerous one if the guarantee is invoked by the project owner for performance shortfalls. Similarly, extended service contracts attached to manufactured goods can become onerous if they had not been priced correctly upfront.

One issue on which a credit analyst must part company with accountants is that accountants create provisions or disclose contingent liabilities only for past events. What if a company is likely to continue to enter into onerous contracts in the near future? Should not the credit analyst consider the present value of losses than emanate from such contracts? Of course, such mispricings cannot carry on forever in the future. So an analyst must use his judgment

in deciding for how long a company could carry on entering into contracts that create upfront cash flows and illusion of profitability but cause losses in the long term. The analyst should deduct the present value of such estimated losses from the shareholders' equity.

Contingent Liabilities turning into actual Liabilities of Governments

Governments in developed countries took on obligations in the post second world war period that were based on two broad assumptions- the longevity of human life would not increase and the tax and demographic structure of society would remain unchanged. The obligations are broadly of two types- social security or a pension payment to every citizen after a certain age and health care benefits, which in some countries are for all citizens.

In a true sense, these liabilities were not contingent liabilities but actual liabilities that the governments had taken on. Because in each year the actual payout was lower than current inflow of cash into the schemes, the assumption was that such a clement state of affairs would last, though the schemes were technically insolvent because the present value of future obligations were higher than fund assets. Like all Ponzi schemes, the schemes of the governments were liquid while being insolvent. People make absurd statements like "Social Security will be bankrupt in 2019". If you know that it would be bankrupt in 2019, it means the scheme is bankrupt today. What they perhaps mean is that the Ponzi scheme will collapse in 2019 with cash required for meeting payouts being less than cash inflows.

Credit rating agencies were not bothered by the widening hole. Perhaps they thought that because these were obligations to natives and not foreigners, a government defaulting on those obligations would not constitute a sovereign default. Default on such obligations would be difficult since in most developed countries, older voters who would immediately be affected, outnumber younger voters. How this intergenerational battle will play out is uncertain. Would the default happen through subtle cutting of corners as happens in

developing countries where government hospitals would not be stocked fully with medicines and replacement of broken down equipment does not take place? The number of hours for which doctors would provide services would fall. Would there be cut backs on public schools, fire services etc? Would there be a subtle brow beating of service providers? The number of days that public schools would work in a week would fall from 5 days to 4 days (there might even be a report stating why this is good for students).

While Medicare and social security schemes are actual obligations that are underfunded, the real contingent liability emanates from two sources- first from the fall in the value of pension assets of government schemes and second from private sector pension liabilities that could be dumped on government agencies during bankruptcies. If the societal debt ratio stays high, the chance of bankruptcies rises and with that increases the probability of contingent liabilities getting converted into actual liabilities for governments. Bankruptcies could be a double whammy for government pension schemes. Besides the dumping of pension liabilities on to the government schemes, they reduce the value of pension assets if the government scheme holds securities of the bankrupt company. Investment banks in the US were not content with wrecking havoc on the banking system and the economy. They also shoved a lot of junk “assets” into the pension funds of municipalities and states. A classical historian had remarked that “Rome under Sulla was like a bus with half the passengers trying to drive and the rest trying to collect the fare”. Half the investment banks were extracting a toll on the “here and now” by requiring bailouts. The other half was creating future liabilities for governments by flooding the pension system with junk “assets”.

Government contingent liabilities also come from guaranteeing the banking system after a bust. By mid 2009, the IMF estimated that the various government guarantees of Ireland amounted to 200% of GDP. Because of a string of bank failures in the US during 2008 and 2009, the FDIC’s reserves at its deposit insurance fund were below statutory minimum,

increasing the likelihood that the institution's reserves would need to be strengthened by the government. The guarantees of the obligations of giant mortgage finance institutions, Fannie Mae, Freddie Mac and Federal Housing Administration, could amount to almost 50% of the US' GDP. Obviously, only a small fraction of these contingent liabilities are likely to crystallize into actual liabilities. Nonetheless, when considered in conjunction with other contingent liabilities, the numbers involved are not small.

Contingent Liabilities of Credit Insurers and their Credit Stories

The problems that the financial guaranty business experienced from 2007 can directly be traced to the easy money policy of the US central bank. Historically, financial guaranty companies used their then triple A credit rating to guaranty bonds with a stand alone rating of around single A. When the central bank follows an easy monetary policy, the easy liquidity narrowed the spread between single A borrowers and AAA borrowers. That reduced the incentive to pay a guaranty fee for guaranteeing the single A bonds. Only when the spreads are reasonable would business come the way of the guarantors. Additionally, due to the easy money policy, property rates and property speculation went up, improving the property tax collection of municipalities. The financial guaranty business' original *raison d'être* was to guaranty municipal bonds. A combination of lower municipal debt issuance due to increase in property tax collection and the narrow spreads between guaranteed and unguaranteed bonds put a big question mark on the municipal guaranty business. Hence the guarantors started looking elsewhere for revenue and found in the structured finance and asset backed business the answer to their prayers for replacing lost revenue from municipalities.

The way the financial guarantors were booking income, even in their traditional public finance guarantee business, left a lot to be desired. Credit insurance is quite different from property and casualty (P&C) insurance, and the way that revenue is booked needs to reflect this reality. If a P&C insurer wrote a three year home insurance policy, the chance of an

unfortunate event happening in the first year is the same as in the third year. So, if for such a policy, the insurance premium is received upfront, it made sense to book one-third of the received premium as earned premium in each of the three years. In the first year, the two third of the received premium (“the written premium”) needs to be kept as unearned premium reserves in the balance sheet.

In the case of credit insurance, it is hard to argue that the risk is evenly spread out. To make matters worse, the average tenure of the liabilities insured can be as long as 10 years. The visibility on the likely credit quality five years down the line is far hazier than the credit quality one year down the line (this is not true of a pool of retail loans, where the principal amortizes monthly and the borrower has a lot to loose if he defaults late in the life of a loan). Hence, the risk five years down the line is higher than the risk in the current year. A credit insurer is unlikely to cover an issuer who he thinks is going to default in the next year. Hence the current method of booking of revenue is definitely incorrect.

What then is the correct method of booking revenue for a credit insurer? We are not sure, but, a variation of the Sum-of-the-Years'-Digits Method (SOYD) of [accelerated depreciation](#) that results in higher [depreciation](#) charges in the earlier years of a [fixed asset](#)'s useful life than the [straight-line depreciation](#) method, could be a rational method. What we suggest is an inverted SOYD. Under this method, for a 4 year credit insurance, you would book $1/10^{\text{th}}$ (the sum of 1,2,3 and 4 is 10) of the written premium in the first year, $2/10^{\text{th}}$ the written premium in the second year, $3/10^{\text{th}}$ the written premium in the third year and $4/10^{\text{th}}$ the written premium in the final year. Since, the risk in the fourth year is higher than in the third year (there is more uncertainty as to how the credit story will pan out), which in turn is higher than the second year, which in turn is higher than the first year, this method better matches revenue with risk than the way revenue is currently booked in the industry. So, at the very least, the inverted SOYD method of booking revenues is logical. What this also implied was that the

unearned premium reserves of bond insurers for their public finance business, at the end of 2008, was woefully inadequate. This will continue to be inadequate as long as earnings are booked as they are currently done. Lower unearned premium reserves mean lower claim paying resources for paying losses.

Using the straight line method of booking revenues horribly understates the contingent liabilities from a credit insurance contract. This is becoming evident now as several US municipalities are verging on bankruptcy. This includes not just small municipalities but municipalities of big cities such as San Diego. Over booking of revenues led to lower pricing of real risk and undercapitalization. Rating agencies have been assessing the industry for the last three decades, when public finances in the developed world were fairly strong and the economy grew at a brisk pace. The rating methodologies for credit insurers which pay attention to such absurd criteria like “franchise value” needs to be junked. Franchise values matter for many companies- but not for a credit insurer. The only things relevant for assessing a credit insurer are correct estimation of profitability and hence correct estimate of pricing and loss reserving as well as adequacy of capital vis-à-vis the portfolio that is protected against credit losses.

This is the aspect of the credit story of the financial guarantee business which commentators have ignored while laying all the blame at the door step of the structured finance business. The public finance guarantee business perhaps made sense only in the initial decade of the business model’s birth in the 1970s. After that, the viability of the business rested on the hope that finances of US municipalities would not deteriorate. Otherwise the risk pricing was definitely not correct. The only way a guarantor could show profits was by over stating revenue, understating required loss reserves and praying there would be no defaults. The long bull run of the following two decades ensured those prayers were answered. But the fundamental model was getting more and more unviable as credit spreads between the best

and the worst credits continued to narrow, killing the pricing power of the credit insurers. In the bond guarantee business, the value provided by the guarantor to the guaranteed entity is the savings in interest cost emanating from the lower interest expense on the guaranteed debt. From this one must subtract the premium paid for the insurance. So, if it costs \$ 5 million to an entity to borrow if it issued bonds without the guaranty, \$ 3 million of interest expense with the guaranty and the guaranty fee is \$1 million, the net benefit to the issuer is \$ 1 million (5-3-1). Basically, the credit insurer is pricing a risk which the market thinks is worth \$ 2 million at \$ 1 million. Now, there are extended periods of time during which the markets can misprice risk, but considering the easy liquidity environment since the day Alan Greenspan bailed out the US stock markets in 1987, the markets were more likely to have underpriced risk rather than overpriced risk on account of the Greenspan put. So, the fundamental reason for existence of this business was questionable.

This is what forced a change in the business model, causing the credit insurers to assume higher and higher risk per unit of premium by getting deeper into structured finance and exotic products such as the Ambac deal in 2006, in which the credit insurer guaranteed the securitizing of Dunkin' Brands' franchise loyalty fee for a leveraged buyout by three private equity shops.

By 2008, after managements had run the credit insurance companies to the ground, we had the pursuit of separating the viable part of a company from the unviable bit- for example, the so called "good GM- bad GM", "good Citi- bad Citi" model. MBIA did the same in early 2009 by moving the public finance business to the National Public Finance Corporation ("the good MBIA") from the bad MBIA which housed the structured finance business. We predict, that the "good MBIA" would turn bad within a few years on account of the unviable prices at which the long dated municipality guarantee contracts were priced in the past. Though pricing power has returned, the risks have increased manifold. And revenues are still

overstated, leaving higher shareholder returns but lower reserves for claim payment in the future. Perhaps in a few years, we will have another amoeba like bifurcation between good MBIA and bad MBIA when the financial weakness of the municipalities on account of high SDR will come home to roost. Bond investors would do well to look at stand alone credit strength of municipalities and not rely on payouts from the bond insurers. The growth of the exchange traded CDS market would be the last nail on the viability of credit insurers.

Adequacy of Loss Reserves: The key Contingent Liability at MBIA at the end of 2007

There were many of aspects to the MBIA tragedy which could have been predicted only with the benefit of hindsight. However, there were even more facets to the saga which could have been predicted- in fact some analysts did just that and benefited enormously when their predictions turned right and the share price of the company plunged. As usual, the rating agencies were not among those who displayed perspicuity of thought. And to heighten the irony, MBIA's management did not think it fit to remove its slogan "wisdom in action" from its website long after disaster struck.

MBIA, the largest bond insurer in the world at the end of 2007, was incorporated in 1986 to provide financial guarantee to municipalities for their bond issues and structured finance issues. The company's financial guarantee provided an unconditional and irrevocable guarantee of principal and interest payment on the insured obligation. The company is a successor to the business of the Municipal Bond Insurance Association, which began writing financial guarantees for municipal bonds in 1974.

Here are a few problems that a thinking analyst should have spotted. Firstly, as mentioned earlier, all bond insurers were overstating their revenue. In the public finance guarantee business, this is not yet evident- but it will become evident in a few years as long term guarantees come back to haunt the company. The management stated that loss reserves were

created based on an internal formula –not by the traditional approach as in P&C insurance companies. The adequacy of those reserves is the key contingent liability. Credit rating agencies were big drivers of bond insurance capital and reserves. Rating agencies, based on their formulas, which gave more weight age to their own credit rating assigned to the insured municipalities and less to common sense, made it known to bond insurers the capital they needed to have to get a triple-A credit rating. MBIA, just like other bond insurers, religiously observed this rating agency injunction as their core business requirement.

MBIA's reinsurance strategy obviously was not captured by the rating agency models. MBIA held a 17.4% stake in Bermuda based financial reinsurance company Channel Re, which it bought for \$63.7 million. 54% of its risks were ceded to Channel Re. The reinsurance recoverable at the end of 2007 was \$ 13.1 billion. Does it make sense to have an equity stake in a company with whom you reinsure? If the reinsurance claims are made, the value of the equity holding in the reinsurer falls. At the end of 2007, Channel Re had a negative shareholders' equity on a GAAP basis and MBIA wrote down to zero the value of its Channel Re holdings. The lesson is one should look at the gross and net of reinsurance exposures of insurance companies separately so that one can assess the impact of reinsurers going belly up. In addition, the analyst should look at the percent exposure to each reinsurer, and the type of cover- proportional or excess of loss.

Secondly, to compound the woes at MBIA, there was a strong correlation between the performance of its liabilities (reserves for underwriting losses) and the investment book held against unearned premiums and loss reserves. The unforgivable lapse of MBIA's risk management was having a chunk of its investments in debt paper guaranteed by it as well as other credit insurers. See the absurdity of the situation- MBIA gets premium revenues for guaranteeing some bonds. Because of the guarantee the bonds have a AAA credit rating. Against the unearned premium reserve of writing the bond insurance policy, the company

invests in the very same paper. What will happen if the underlying credit defaults? It will have to make the payouts to the investor- that is to itself. Let us say, the company spent \$ 100 to buy the bond, on which it collected a premium of \$2 for guaranteeing. The moment the default occurs, the assets come down by \$ 100, but the liabilities are reduced only by \$ 2. The folly was magnified when MBIA also invested in the bonds guaranteed by other insurers. All credit insurers were governed by the same credit story, so investing in paper guaranteed by other insurers would also be somewhat correlated to MBIA. Even if the underlying bond did not default, downgrade of a bond insurer would cause a reduction in value of assets and value of shareholders' equity. At the end of 2007, \$2.58 billion in own portfolio and \$ 5.5 billion of managed investment portfolio, i.e. 16% of the investment portfolio was guaranteed by MBIA itself and 14% by other insurers.

Obviously the insurance portfolio also had deteriorated over a period of time. In 1998, public finance guaranteed portfolio was \$ 50.3 billion while the structured finance portfolio was \$ 95.3 billion. By 2007, the public finance portfolio grew to only 59.9 billion, while the structured finance portfolio jumped to \$ 148 billion. CDOs guaranteed went to \$ 58 billion in 2007 from \$31 billion in 2006 and \$16 billion in 2005.

The claims paying resources of MBIA, which is defined as the sum of capital, contingency reserves, unearned premium reserves, present value of installment premiums, loss reserves and stop loss reinsurance was \$ 10 billion in 2001, which by 2007 just could not be valued correctly on account of the junk sitting on the asset side of MBIA's balance sheet. Between 2001 and 2007, the credit default swap portfolio jumped from \$ 17.5 billion to \$ 200 billion. The claims paying resources, thanks to severe under reserving, did not keep pace. Clearly this was another crucial risk that was not captured by rating models.

How the Ambac story unfolded for S&P

Credit insurer Ambac had on its website (as of early 2009), the details of the pronouncement of rating agencies on the company since August 2007. One is unclear about the motive of Ambac for doing that- whether it was in the interest of greater disclosure or whether it was to expose the fickleness and the lack of intellectual robustness of the different pronouncements by rating agencies within a short period of time . That can best be answered by Ambac management. We cannot help sympathizing with management, but the management itself had a lot to answer for regarding its loss reserving policies. Truth be told, Ambac, like the other credit insurers, considering its capital adequacy and earnings robustness, was never a triple-A credit after the halcyon 1970s.

In early August of 2007, S&P opined that the sub-prime mortgages sector did not pose a threat to the US bond insurers. No doubt, their motives for professing thus were honest- at that time, the only understanding that S&P had of subprime mortgages was that they generated high fees. So, they could plead insanity and not enter the “guilty” plea. After some tentative back of the envelope calculations (which S&P christened as “stress tests”), the agency concluded that Ambac’s total subprime related theoretical losses as a percent of capital cushions was 16.6%. We were surprised that the second and third decimal places were not shown! Within two months, on October 2nd 2007, S&P declared a turnaround in an article titled “Conditions improve for bond insurers in US asset backed market”. Clearly, the time between the two reports was not fruitfully spent in trying to understand the dynamics of the subprime market and its baleful implications. Within 9 days, a frown appeared on S&P’s thoughtful face and it declared “Economic woes continue for triple-A bond insurers’ US Public Finance business”. Then in a mood turnaround on the 31st of October, the agency pronounced in a report filled with fuzzy platitudes “Significant mark to market losses on credit derivatives not expected to affect bond insurer ratings”.

One might argue that it is easy to poke fun when one had the benefit of hindsight. And yes, far superior minds than the average minds that inhabit the three leading rating agencies did not foresee the true impact of the subprime crisis. But those analysts did not have the data to inform them that the subprime mortgage market with negative amortization loans, and liar loans was vastly different from the subprime market of the past. Added to that, these frequent commentaries revealed a certain restlessness, which might flatter a technical analyst but does no credit to a financial analyst. No attempt seems to have been made to take a deep breath, revisit the whole credit story and debate the implications.

On the 19th of December 2007, S&P did a third stress test on the bond insurers. Obviously, the results were pointless because it did not see the big picture of subprime mortgages in the context of unmanageable household debt (the non understanding of the consolidated financials of society). However, this time, S&P did not sound very sanguine. Though it did not downgrade the insurers, it revised their outlook to negative. It still thought that the capital of the insurers was sufficient for survival in the medium term. In less than a month, on the 17th of January, Ambac was placed on rating watch with negative implications. On the 25th of February, while sparing Ambac, the rating agency, admitting utter cluelessness, downgraded an Ambac competitor, and Bermuda based bond insurer XL Capital Assurance by a massive 6 notches from AAA to A-. Surprisingly, on that day, S&P removed MBIA from rating watch merely because the company managed to raise a meager \$ 2.6 billion in additional capital. Incidentally, on that day, S&P conducted yet another stress test on the bond insurers' financials. Good bye analysis, hello cluelessness.

On the 5th of March, in response to Ambac's plan to raise \$ 1.5 billion in additional capital, S&P opined that if the fund raising plan was successful, the credit watch on Ambac would be dropped. In response to Ambac's successful raising of \$1.5 billion in additional capital, S&P announced on the 12th of March that the ratings were now off credit watch. In less than 3

months, on June 5, both Ambac and MBIA were downgraded by two notches to AA, and placed on credit watch again. It was like a weak-minded surgeon, clueless of what was happening, kept wheeling a patient in and out of the ICU at rapid intervals whenever the whim possessed him. The Ambac rating rationale published 6 days later revealed an utterly confused state of mind. The rating agency was like a deer stuck in a headlight- it surrendered itself to reacting to every new data on the mortgage market and haphazard forays into disjointed thought. It had absolutely lost the will to do any analytical forecast on what was likely to happen based on the underlying story of subprime mortgages in a recessionary environment coupled with a high household debt and weakening employment data. While no one expected S&P to forecast what the ultimate losses would be, it was easy to forecast that the capital levels vis-à-vis conservative estimate of losses implied a junk credit, not a double-A one.

On August 14th, Ambac's credit rating was again taken off credit watch. In their rating rationale published two weeks later, the agency said that its stress test had revealed Ambac's capital to be adequate for the double-A rating. After the Lehman bankruptcy, on the 23rd of September, S&P came out with another muddled report on bond insurers. After failing the test at short term forecasting, S&P tried its hand at long range forecasting. On the 15th of October, it stated "market disruption provides pricing opportunity for some bond insurers". On the 6th of November, S&P opined that projected loss for bond insurers from their structured finance portfolio would be much higher than its initial estimate. On November 19, Ambac was downgraded by a further 3 notches to single-A.

After a short hiatus, the agency on the 25th of Feb 2009 proclaimed oracle like "for bond insurers, the future depends on investor confidence". What a pearl of wisdom! On the 24th of June, Ambac was downgraded by a further 3 notches to BBB. In slightly over a year,

Ambac's rating had fallen 8 notches. This non-stop freak show cannot be explained by anything else other than utter cluelessness.

Accounting Text Box: Is SFAS 163 locking the Stable too late?

In May 2008 the FASB issued SFAS 163 to clarify how SFAS 60, "Accounting and Reporting by Insurance Enterprises" needed to be applied to financial guarantee insurance contracts and how to account for premium revenue and claim liabilities. The purpose of the standard was to increase consistency of income recognition and measurement of claim liabilities among different bond insurers. The premium revenue recognition is linked to the amount of insurance protection and the period for which it is provided. Insurance protection provided is assumed to be a function of the principal outstanding. Note, that a principal outstanding in the second year is considered equal to the principal outstanding in the first year. However, unlike in the case of a P&C insurer where the probability of an ill wind striking in the first year is independent of it striking in the second year and hence the risk falls every day that has expired of the contract, the probability of a credit default occurring in the second year is not independent of the happenings in the first year. And because managements of the insured companies can change the credit risk profile of an insured, the visibility is less and credit risk more in the second year.

On the claims side, the bond insurer is required to measure the claim liability equal to the present value of expected net cash outflows. It is clearly mentioned that the insurer must take into account relevant market information (presumably CDS premiums and credit spreads) and not rely solely on management discretion. That would, to some extent, prevent under reserving. But market signals can be late in coming (though they would be far ahead of the bond insurer management). The credit spreads were far too low in 2005 and 2006, and the market signals would have implied lower reserving. The only way around this is slower booking of revenue and larger unearned premium reserves to compensate for lower claim

reserves. While the standard requires an enterprise to recognize a claim liability when the enterprise expects that a claim loss will exceed the unearned premium revenue for a contract based on present value of expected net cash flows to be paid under the contract, the sunny disposition of the bond insurer management is likely to ensure that this stipulation would not be too useful.

Contingent Margins from Product Warranties

Product warranties are no big deal if a company has a product that has been in the market for a few years (at least longer than a full life cycle of a warranty). An analyst can then evaluate if the reserves created for product warranties are adequate vis-à-vis actual payouts for rectifying defects. For instance, for the three financial years 2006, 2007 and 2008, for technology company Hewlett Packard, the annual provisions for warranties was 3.3% of annual net product revenue, while the actual costs for warranties was 3.1%. This provides comfort to the credit analyst as long as new products and services do not constitute a high proportion of sales. Only when the warranty costs are fairly certain can the full cost of a product, the actual profit margins and return on capital employed be estimated accurately. Typically, as product improvement takes place, the payouts necessary for warranty fulfilment will come down.

Problems arise from new products where the likely payouts from product warranties are uncertain. Then, the cost of sales shown in the income statement is a contingent one, and hence the operating margin calculated is also a contingent one. Likewise, for an existing product, if the terms of the warranties are changed, such as if the length of the warranty period is extended, the profit margin becomes a contingent one.

This is not a big deal for strong companies such as Cisco Systems, a creature of the internet age, which sells the gear required for sustaining the internet. The company offers product

warranties ranging from 90 days to five years, and even limited life time guarantee on certain products. There are several sources of comfort for the creditor. Firstly, as a “post defined benefit pension era” company, the company has very little unfunded liabilities (the bit it has is from the acquisition of Scientific Atlanta). Secondly, the company has a very high quality investment portfolio, which provides a good cushion against adverse developments. Finally, and most importantly, the high operating margins of its businesses permit room for error, should the demands from warranties exceed what has been projected. The record from the past years provides comfort to the creditor because the payouts are broadly in line with what has been provisioned for.

Correct Pricing of Extended Warranty Contracts is crucial for Dell's Credit Quality

Computer maker Dell offers extended warranty and services to customers that extend the technical support and labor coverage offered as a part of the base warranty included with the product. Since this warranty is an optional extra, it requires extra payment by the customer. How correct this charge is for covering the expected losses that accrue from providing the extra warranty will determine if the company has to book a loss on such services. Obviously, the cost of servicing the extended warranty contract would be higher than the cost of servicing the equipment during the base warranty period for the same duration (say one year), because the product would have gotten older and hence more likely to fail.

Extended warranty is recorded as deferred service revenue in the balance sheet. If the extended warranty is for two years, the revenue and the costs are booked over the two years. The revenue needs to be actuarially split between the first and second year depending on the likelihood and severity of losses over the two years. Since the probability of the extended warranty being exercised over the second year is higher than the first year as the equipment would be more worn out, a higher proportion of the revenue should be booked in the second

year to better match the revenue with the expected losses. If the extended warranties are not correctly valued, there could be losses that need to be booked by the company.

For Dell, the warranty liabilities from the extended service contracts far outstrip the basic warranty. For the fiscal year ended January 30, 2009, Dell reported deferred service revenue of \$5.6 billion. The base warranty liability was less than a fifth of that at \$1.04 billion.

Between fiscal years 2006 and 2009, Dell's sales increased, somewhat tepidly, from \$55.8 billion to \$ 61.1 billion. The operating income actually came down during this period.

However, deferred service revenue outstanding climbed from \$ 3.7 billion to \$5.6 billion (a jump of more than 41%). Was this jump due to expected inflation of servicing the warranty contracts? Was it due to offering to cover more risks than what was covered by the extended service contracts of earlier periods? If the jump was due to expected inflation, and if instead a deflationary environment prevails, when the time for servicing the contract comes, Dell would book higher profits than expected from the service contracts. Likewise, if inflation turns out higher than priced in, losses might have to be booked. Because the reserves for basic warranty climbed very moderately from \$951 million in 2006 to \$1.03 billion in 2009, one is inclined to believe that the jump in extended warranty was not due to expectation of inflation but due to offering more services/increasing the coverage. Whether these future liabilities have been correctly valued will have a profound impact on the profitability of the company in the future.

In fact, in 2007, there were allegations that the company was using its warranty reserves for managing earnings. The effect was not much but it highlighted the fact that credit analysts should be aware of this very important head. As companies move more and more towards treating initial sales as merely establishing contact with the customer, with a chunk of the revenue coming later from providing services ("the integrated goods and services model"), this head will acquire more and more significance. Even equity analysts would do well to

focus on this long term driver or destroyer of value instead of fretting if the company's quarterly earnings beat expectations by a penny.

Contingent Liabilities would be unfamiliar Territory for China's Lenovo

Hong Kong listed computer manufacturer Lenovo celebrated 25 years of existence recently. For most of its existence, the company did not have much debt on its balance sheet and relied on the Greater China market for its sustenance. The most interesting event in the company's life was its acquisition of the PC business of IBM. At the time of the acquisition, IBM's PC business had negative shareholders' equity. Clearly the hope was that by shifting its manufacturing base to China, it could succeed where IBM failed. Post paying cash for a company with negative equity, the company's goodwill on its balance sheet stood at \$ 1.85 billion. The original promoter of the company, Legend Holdings, held about 45% of the shares of the company post the IBM acquisition.

China's rating agency Xinhua Far East China Ratings expressed deep concern over the takeover, particularly since it loaded debt onto Lenovo's previously ungeared balance sheet. The agency considered it a poor gambit because of the very poor operating margins of IBM's PC business. The IBM business introduced two contingent liabilities into the Lenovo story- one on its capital structure and the other on its operations. To finance its acquisition, Lenovo issued convertible preference shares, \$ 227 million of which was outstanding as on 31st March 2009. It is more and more likely that these preference shares will settle as debt instruments.

Secondly, liabilities from warranty provisions might be more serious in other countries than in the Chinese market where Lenovo traditionally operated. Warranty periods range from one to three years depending on country. The company makes a provision for basic limited warranties the moment a sale is consummated as well as for extended warranties for which a

customer pays extra. The company also makes a provision for sales return, which at the end of March 31st 2009 stood at \$ 112 million was lower than the \$160 million at the end of the previous year. The fall is higher than the almost 9% fall in sales- in fact one might encounter a higher proportion of product returns during tough times. Warranty provision fell from \$209 million to \$ 170 million. It is possible the company's American and European operations, unable to deliver on the earnings front were resorting to aggressive estimates of warranty costs- if so it will be clear in a year or two. Warranty cultures are different in different countries- one wonders if Lenovo has adequately appreciated that. Else it is in for unpleasant surprises in the near future.

For the financial year ending 31st March 2009, the company had a net loss of \$ 226 million, as opposed to a profit of \$484 million in the previous year. A positive feature of the company's operations is its negative cash conversion cycle of 23 days. We wonder if suppliers would be so forbearing if the losses do not stop.

Rolls Royce's Manufacturing & Services Model- exciting Business but opaque Margins

As an aerospace engineer by training, this author is fascinated is no small measure by the amazing aero engines developed by Rolls Royce plc of the UK. As a credit analyst one worries that it is not possible to have a clear idea of the company's operating margins.

Rolls Royce, the global leader in the manufacture of engines for power generation and aerospace and marine propulsion, was founded in 1884. In 1904, the company started making the famed Rolls Royce cars. The car business was beefed up with the acquisition of Bentley Motors in 1931. The company faced an acute financial crisis in 1971 and had to be nationalised by the UK government. The automotive division was spun off and sold to Vickers plc. The fabled cars finally found a resting place in the balance sheet of German automaker BMW. In 1987, Rolls Royce was privatised again.

The fascinating aspect of Rolls Royce's business model is that services contributed an ever increasing proportion of revenues. By 2008, services contributed more than 50% of the total revenues. By the end of 2008, the company's installed base of over 54,000 engines provided a solid foundation for the services business. The services business involves providing operating and maintenance services to its customers and could involve supplying spare parts such as turbine blades of the gas turbine engines. When the company sells a gas turbine engine, either for aerospace, marine or power generation applications, the company does not have a separate sales contract for the engine and a services contract for maintenance of the engine, but an integrated goods and services contract. Hence no one, including the customer, has any idea what Rolls Royce is charging for the engine and what it is charging for the services contract. To generate recurring revenue from rendering services, the company sometimes sells engines below cost and recovers the loss from the services contract. The company acknowledged this in an annual report and stated that Rolls Royce may sell original equipment to customers at a price below cost on the basis that this deficit will be recovered from future after sale services. This deficit is recognised by the company as an intangible asset, and it is amortised on a straight line basis over the expected period of engine utilisation by the customer. The recoverable engine costs shown as a part of intangible assets amounted to £ 213 million at the end of 2008.

The amount of money to be recovered from the customers for services based on contractual terms is shown as receivables. The length of these service agreements can be gauged from the fact that of the £1.45 billion of amounts recoverable shown in the balance sheet at the end of 2008, £1.22 billion would be expected to be recovered in more than 1 year. The customer advances for the integrated equipment and services contracts amounted to more than £ 2 billion.

Because the services business has been growing at a rapid clip and has not reached a steady state in terms of revenue contribution as a percent of total revenues, it is difficult to tell whether the pricing of the services will ultimately turn out correct and what the ultimate margin from a sale is going to be. In this business model, it is vital that the company disclose service expenses from a sale for each sale year. For example, from the total engine sales made in the year 2000, the analyst would like to know how much was spent in 2001, 2002 and all subsequent years to date on the service contracts. Likewise, one needs to know the amount spent on sales consummated in 2001 during the subsequent years. This helps the analyst to assess how much costs will be incurred on service contracts for the recent sale years for which the service costs would not have been fully accumulated. Of course, each sale year must be normalised by the sales made during that year. Once the analyst estimates how much expenses would be incurred and over what period, he can calculate the present value of those expected expenditures. This amount has to be compared with the receivables from the service contracts as shown in the annual report. If the receivables are higher than the present value of service expenses to be incurred, the analyst can rest easy and can have a good idea of the business margin.

Another reason why the operating margins cannot be exactly calculated is because the company provides financing support in the form of guarantees. The guarantees could be asset value guarantees (guaranteeing the residual value of the engine after a certain number of years) and credit guarantees. The former constitutes 55% of the total guarantees while the latter contributes 45%. The company disclosed gross contingent liabilities on account of such financing support to the tune of £755 million at the end of financial year 2009. For this, the company had created a provision of only £73 million. That makes it even more difficult to estimate what the ultimate margin from the business would be based on disclosed data.

Rolls Royce is a fascinating company, employing eminently competent engineers. On account of its technological superiority, it is very difficult for a competitor to break in. However, one wishes the company had a higher level of disclosure to enable a financial analyst to estimate the correct operating margins. The margin revealed in the income statement is contingent on too many factors- better disclosure would enable better estimation of the operating margins and the return on capital employed.

Contingent Margins of Construction Companies and Third Party Indemnities

Whenever a construction contractor takes a fixed price multi year contract, his booking revenues linked to costs is contingent on the project being completed on schedule and to costs. Else, the profits booked earlier are not correct. In addition, a contractor might provide a number of post completion performance guarantees, guaranteeing that the project, say a refinery, will operate as per the conditions specified in the contract document. The margins reported by a contractor remain contingent till the point the contractor can truly wash his hands of a project post the expiry of the performance guarantee period.

Take the example of Canadian contractor SNC Lavalin. It had entered into a fixed price contract to build at Ontario, Canada an 880 MW combined cycle thermal power project for Sithe Global Power Goreway. The scope of the contract included designing and building the power project. Initially SNC Lavalin booked revenue as per the percentage completion method accounting. Unfortunately, a key supplier to the project went bankrupt, which caused considerable delays and increased costs to SNC Lavalin. On account of this the company had to book an operating loss of Canadian \$267 million in its power segment.

Project owners are also exposed to contingencies if they give out contracts based exclusively on capital costs while ignoring operating costs and life cycle costs. The Indian government awarded mega power projects to companies based on which company would sell power at the

lowest tariff to the state utilities. This caused a rush of Indian power companies to Chinese power equipment suppliers. The companies were focused on the “here and now” ignoring the damages they would have to pay to the utilities in future when those equipment break down. The experience with Chinese power equipment in India has not been a happy one- yet the companies, in order to get capital costs to the bone have handed over projects to the Chinese suppliers. The contingent costs of the Indian power companies will become apparent in the next few years.

Contractors’ margins also become contingent on account of third party indemnities. A contractor might have to indemnify a project owner against damages caused to third parties due to failure of equipment etc. The owner has to establish the link between a financial loss he suffered as a result of flawed design or manufacture. Lost production revenue on account of rework at the project might have to be paid by the contractor. Typically, the contractor has to indemnify a project owner against loss of or damage to the project owner’s property and claims on account of personal injury or death as a consequence of flawed designing or commissioning.

Contingent Liabilities from Product Liability Lawsuits

Companies to an extent can protect themselves against damages from lawsuits on account of harm caused by their products to customers by buying product liability insurance. However, as discussed earlier, merely the fact that a company has insurance policies in place should not lull the creditor into a false sense of security. Since product liability lawsuits are very long tailed, it is essential that the insurance policies be with very strong insurers (unlike the insurance of property against damage) so as to ensure that the insurers are around to provide cover against damages. One of the lessons of the credit crisis is to avoid insurance companies who pursue non insurance hobbies like AIG.

Both the dimensions of contingent liability come into play for product liabilities. For a long time you are not sure whether you are exposed to the risk of loss. Even when the risk of loss is confirmed, the amount of the loss would be uncertain- so the best thing a company facing such a lawsuit can do is it to disclose the possible liabilities, their nature, if possible the range where the management thinks ultimate losses would be, the details of product liability insurance policies in place with disclosures on deductibles of the policies, the upper limit if any of the coverage and name of the insurer. The management of the company as well as the credit analyst should not go by the external credit rating of the insurer, but more than one knowledgeable opinion must be taken for the assessing the creditworthiness- current and future of the insurer. Product liability insurance is too vital to be left to the whims of the assessments of credit rating agencies.

Pharmaceutical Company Behavior: Cost of doing Business versus Solvency Threat

Product liabilities of pharmaceutical companies are of two types. The first one is caused by willful fraudulent behavior of the companies which seek to promote uses of drugs for purposes not approved by regulatory agencies such as the FDA in the US in order to secure additional revenue streams. The second is caused by a harmful side effect of an approved drug for an approved use. Product liability insurance covers losses on account of the second cause but not that from the first cause. Many insurance companies have gone bankrupt on account of product liability insurance- so if a major event really occurs, there is very little that creditors can get by way of recoveries. But such occurrences are rare and creditors can protect themselves by not taking big exposures to a single pharmaceutical company, besides restricting their overall exposure to the sector to a fairly low level as percentage of debt assets under management.

More worrisome is the patently illegal behavior of big pharmaceutical companies in promoting drugs for unapproved uses. Not only does product liability insurance not cover

this behavior, but it sorely tests the patience of juries who after seeing repeated bad behavior by a company might choose to put it into bankruptcy through an unaffordable fine. The pharma companies seem to treat the fines as a cost of doing business. This might turn out to be a serious miscalculation. Leading pharmaceutical company Pfizer paid a fine of \$ 430 million in 2004 for peddling epilepsy drug Neurontin for purposes unapproved by the FDA. In 2009 the company paid a fine of \$1.19 billion (the largest in US history) for promoting its arthritis relief drug Bextra for other than approved uses. It also paid \$1 billion to close civil cases linked to the same drug. Other pharmaceutical companies such as Eli Lilly, Schering-Plough have also paid penalties for illegal prescription of drugs. The behavior seems to test fate and creditors should avoid companies which have been fined even once for this behavior unless there are clear indications of cleaning up. Once a jury forces one company into bankruptcy, everyone will be forced to clean up- then creditors can take a fresh look at the companies.

A complicating aspect of pharma company credit analysis is the risk brought in by companies acquired in M&A transactions. Pharma companies, unable to come up with blockbuster discoveries to compensate for revenue losses from drugs going off patent, have been busy acquiring companies that own drugs that still have long patent lives. We wonder if this behavior makes sense for shareholders either- companies are paying cash upfront for revenue streams of drugs acquired in M&A transactions while taking huge risks. Patents are being successfully challenged by aggressive generic companies such as Israel's Teva. One successful challenge and poof goes a revenue stream. Secondly these M&A transactions bring in contingent liabilities on account of past illegal behavior of prescribing drugs for unapproved purposes. Pfizer's product misuse suits originated in products that came with two M&A transactions- the acquisitions of Pharmacia & Upjohn and Warner Lambert. We don't know if the company had the misfortune to unknowingly venture into companies with

cowboy sales cultures but thanks to incompetence has not been able to put an end to illegal behavior or whether it is actively encouraging such behavior after having overpaid for those acquisitions. We don't think in future juries would care what the underlying reason for the bad behavior was. All M&A transactions come with contingent liabilities not spotted during due diligence exercises and when those overwhelm the expected revenue streams from the acquisition, bang goes any hope of a creditor getting his money back.

Product liabilities from side effects, even if covered by insurance, does inflict some damage on the company on account of deductibles on contracts and the requirement of having to pay higher insurance premium in future. S&P, perhaps rightly, stripped pharma company Merck of its triple-A rating by 3 notches post its recall of Vioxx (the arthritis treatment drug caused heart problems)- something the agency should have done a few years earlier as juries started awarding big damages.

Asbestos & Tobacco Product Liabilities: Abundant Time for Creditors to react

Product liability lawsuits from asbestos use caused the maximum number of bankruptcy filings (of companies, their insurers and reinsurers). The lesson for creditors from the asbestos episode is that the intellectually curious creditors had ample time to get out. For instance, building materials maker Owens Corning filed for bankruptcy in 2000 to cap its payouts from asbestos liability lawsuits emanating from its high-temperature insulation product manufactured between 1952 to 1972. The first lawsuits were filed in the early 1980s. Those creditors who dismissed the early stages of the problem, when the companies had enough cash flow and the liabilities had not crystallized into a single number, paid heavily later.

Even after a settlement is reached with regulators and governments, isolated suits might still crop up- but they cannot do much harm. When the seven biggest tobacco companies agreed

to pay \$ 206 billion in a master settlement agreement with 46 US states in 1998, the credit worthiness of Altria, the parent company of legendary cigarette maker Philip Morris, drastically improved. Much as one might find the company's behavior repugnant, Philip Morris did have a stubborn doggedness about it which always served its investors well. Its chutzpah can be seen in the way the company created an illusion with women's cigarette Marlboro in 1955. It rebranded the cigarette as a macho man's cigarette with a cowboy ad campaign- sales jumped 3000% in 1956.

We do not know where the issue of transfats is going to lead to. But creditors to the fast food restaurant chains should have their fingers on the parachute button if the issue evolves beyond the current low level of activity. Perhaps, unlike the tobacco companies, the restaurant chains were not aware of the harmful affects of transfats much before the paying public.

Disputes with Tax Authorities and changes in Tax Laws

A company could be faced with increased tax bill on account of two reasons. It could be on account of change in corporate tax rate or change in tax laws that tax new items or remove tax shields on items such as overseas profits. Or it could be on account of tax authorities slapping a claim from a transaction such as an M&A transaction, which the company had not bargained for when the transaction was consummated. It might not be possible to back out of the transaction at the late date on account of penalties that need to be paid. It might be argued, from the creditor standpoint, that the latter cause might be more pernicious because it is charged, not necessarily from income after payment of interest. That is not necessarily so. Higher tax rates might induce companies to get more leveraged to take advantage of the protective cover available for interest servicing. The aim of any company is primarily to protect return on equity post the tax increase. Of course, covenants can to some extent

prevent the company from getting too leveraged. The company might also go for higher dividend payouts to compensate for the higher tax rate.

Vodafone's India Tax Misadventure

UK's telecom services company Vodafone grew by acquiring telecom assets around the world. During the dot com boom the company made use of its overpriced equity as a currency for many acquisitions. After the bubble ended sometime in 2001, the company's balance sheet was stretched. It started divesting stakes in companies. It got out of Japan altogether. After the dust settled, when growth in its core markets had all but lost steam, the company took over an Indian telecom services provider, drawn in by the high growth prospects of the Indian telecom market. It bought out the 67% stake of Hong Kong port operator Hutchison in a telecom company. The other 33% was held by an Indian entity with a reputation for sharp practice. Vodafone paid \$11.2 billion for its stake in 2007.

The Indian tax authorities contended that they had the right to tax the profits that accrued from the transfer of Indian assets, even though the seller, Hutchison controlled its Indian subsidiary through a maze of companies that ultimately led to the Cayman Islands. Since the transfer involved an Indian asset, the authorities contended that Vodafone should have deducted tax at source when it paid Hutchison. The authorities slapped a tax claim of almost \$ 2 billion on Vodafone. The case has not yet been settled. Considering that the company had net earnings of £3.08 billion in the year ended March 31st 2009, the amount involved is not a trifling one.

It is impossible for a creditor to have foreseen this sudden demand for cash which reduced debt protection metrics by several notches. The only broad lesson is to be wary of companies that are too aggressive in their tax dealings. And of course, Vodafone's history of reckless

acquisitions (followed by writedowns) was also a pointer to the fact that this was a company best avoided.

US Overseas Tax and the UK Government Tax on Foreign Residents

When government debt to GDP gets to high levels, creditors need to factor in increased tax rates for the corporate sector. Though interest payments are made on pre-tax income, tax payouts would weaken a company in the longer run as there would be less retained earnings. This increases the credit risk of the principal repayment. The time to think about this is not after the higher tax rates are slapped but before, as government debt starts piling up. These tax increases can push companies, which are operating at the edge between profitability and the lack of it, to the other side.

In the next few years, the governments of the UK and the US will be looking to inflict higher taxes on the corporate sector to keep deficits from spinning out of control. Initially, the tax increase will be on soft targets such as companies that outsource some jobs to foreign countries, banks, foreign residents etc. But those tax increases will be merely pointers to worse things to come. Tax increases might not be the making and unmaking of companies, but credit analysts would need to keep a sharp watch for populist moves.

Contingent Assets

In the interests of conservatism, the accounting standards do not permit the recognition of contingent assets. But the contingent assets referred to in the standards are potential gains such as from a lawsuit etc. What we are referring to in this section is the case where the asset valuation of an enterprise is contingent on many external factors and subject to huge variations. Obviously, such companies cannot support too much debt on their balance sheet. The classic industry where the asset valuations are mind bogglingly volatile is the oil and gas exploration industry.

Spreadsheet Credit Analysis does not work in the Oil and Gas Exploration Industry

The oil and gas exploration industry (not the refining and marketing bit), more than any other industry, is full of perils for the analyst who enters the financials of a company in a spreadsheet, calculates some ratios and jumps to conclusions. This works for a while when oil prices trend up but reveals itself to be inadequate once the price cycle turns.

Before going into the details of analyzing the creditworthiness of oil and gas exploration companies, let us look at the salient issues of oil and gas industry accounting. The biggest item on the asset side of the balance sheet of an exploration company, among companies who file as per US standards is Properties, Plant and Equipment (PPE). Oil industry accounting standards permit the reporting of PPE using one of the two following methods- full cost method and successful effort method. In the case of the full cost method, all exploration costs are capitalized whether the exploration projects are successful or unsuccessful. This capitalized cost is amortised as over a period of time. In the successful effort accounting, expenditures for successful projects are capitalized and amortised as the reserves are produced. Unsuccessful efforts are immediately expensed. The rationale for full cost accounting is that success and failure in locating reserves is part and parcel of the business. That is, to locate X amount of reserves Y amount of resources must be expended and hence Y must be capitalized and written down as the X, over many years, is produced. There are two fatal flaws with this assertion. Firstly, this ignores differences between two companies, one of which has a superior seismic technology and detects dry wells at a higher rate before expending resources and another company, which does not have that technology and hence must expend resources before finding out that the prospect was a dud. Secondly, as one prospects in tougher and tougher areas such as deep seas or in places without strong property rights (making the chances of expropriation higher), the old calculation from historical data of deploying X amount of resources to obtain Y amount of proven reserves might not apply.

So, if an analyst used the historical data, he might overstate future return on capital employed. Most of the big integrated oil companies use the successful effort method and hence the full cost method might soon find its way to the museum of accounting standards. However, while the successful effort method becomes more and more commonplace, the weaknesses of the method cannot be ignored by a credit analyst. The biggest weakness was pointed out by dissenting board members while SFAS 19- "Financial Accounting and Reporting by Oil and Gas Producing Companies" was prepared. The point raised by the dissenting board members was there was no necessary correlation between finding costs and value of reserves found. So, they suggested that conceptually it makes sense to account for mineral reserves at fair value in the financial statements. Theoretically, it is possible for company A to spend X dollars to procure a unit of reserve while company B spends Y dollars to procure a unit of reserve. If those reserves are of identical quality, both companies A and B should state the same amount of assets on their balance sheet. However, if company A was less productive and spent more to acquire its successful finds, it would have a higher amount of assets. So, theoretically, once a company finds reserves, if it keeps spending higher and higher amounts, it will have higher amounts of assets and shareholders' equity. If the equity is overstated, so is the cover available for creditors. We find it paradoxical to value the assets based on costs of successful efforts. Of course, the higher asset valuation would make its effect felt through higher depreciation and depletion costs and lower profitability- but that happens over a period of time and does not assist the credit analyst from taking a call on asset valuation under multiple crude price scenarios.

If a company's earnings from its assets are likely to fall, the assets are said to be impaired and the company is supposed to take a write down of assets so that their values are stated at levels where returns from their usage is equal to the cost of capital. The successful effort accounting papers over this issue. Most of the companies seemed to take a discretionary

view on what amount of impairment charges to take- many stated that the impairment charges on PP&E is linked to the management view on low oil prices persisting for extended periods. Companies were more forthcoming in taking impairment charges if the proven reserves were expected to be less than originally thought. On the 2nd of January 2008, the West Texas Intermediate crude prices were quoting at \$ 99.63 a barrel. By the end of the year the crude prices were a third of that. Yet, the big companies took differing amounts of impairment charges for their exploration assets. Exxon Mobil mentioned in its 2008 annual report “in general, the corporation does not view temporarily low oil and gas prices as a trigger event for conducting impairment tests”. Chevron did not take impairment charges in 2008 on its PP&E account. Shell had negligible impairments costs on its exploration assets. BP took an impairment charge of \$ 1 billion on its exploration assets. ConocoPhillips took an impairment charge of \$ 34.1 billion in 2008. Of this, \$ 7.4 billion was linked to the fall in value of its investment in 2004 in Russian oil company Lukoil and about \$ 25 billion was related to writedown of goodwill in the merger between Conoco and Phillips. That brings to mind another contradiction. If one held oil investments in the form of quoted equity, the value of the assets would fall with market conditions. If the oil investments are held as PP&E under the successful effort method, one had wide discretionary rights. What then is the correct value of assets on an oil explorer’s balance sheet?

Chesapeake’s Full Cost Method of Accounting leads to an outsized Balance Sheet

Chesapeake Energy is one of the largest producers of natural gas in the US. For its gas exploration activities, Chesapeake uses the full cost method under which all costs associated with acquiring a property for drilling, exploration and development activities are fully capitalized. This capitalized item is depreciated at the rate at which gas is drilled out from a find. Because of the use of the full cost method, an analyst cannot estimate what is the likely cash generation ability of the properties. Full cost method is no different from a bank

showing its performing and non performing assets together, without writing down the non performing ones. So, merely because the 2008 annual report stated that the company's capitalized gas properties were for \$28.3 billion and its debt was \$14.2 billion, one cannot say that the debt equity ratio was around 1:1. Actual debt equity ratio was larger on account of the lower real equity due to the lower real value of assets. Chesapeake's leveraged balance sheet means the company is very vulnerable if gas prices fall precipitously.

Back of the Envelope calculation of Asset Values of an Oil Exploring Company

Obviously, we don't have a full fledged answer for such a complex topic. However, we have some rough thoughts which build on the fair value concept which the dissenters in the board creating SFAS 19 thought necessary. So, our back of the envelope calculation of the net asset value (not including current assets) of an oil exploring company would be

PP&E assets= value of proven reserves + value of unproven reserves + value of drilling rights

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- adjustments for potential trouble such as expropriation/security problems in troubled regions

- Clean up costs for matters such as environmental issues

Value of Proven reserves = Quantity of proven reserves * (different unit price scenarios post extraction costs and other costs such as royalties etc)

Value of unproven reserves = same method as above except one would try out various quantities of reserves (how low can it be is a question that needs to be answered)

Drilling rights can be valued at fair value if it can be sold. Else considering the high risk nature of the business, from a creditor's viewpoint, zero.

Adjustments for potential trouble depend on where the exploration resources are located.

On the current asset side, the use of the concept of “replacement cost profit” removes the potential reduction in value from carrying stocks. Most oil companies disclose replacement cost. This is particularly relevant in an environment of sharply falling crude prices, when the inventory can sharply lose value. Also the quantity stocked can vary significantly unlike in other businesses.

Contingencies from the Capital Structure

When a company issues a liability instrument whose maturity date is uncertain or whose cash flow pattern is uncertain, the instrument induces contingencies into the capital structure of the firm. Examples of instruments that induce contingencies on the liability side of a company’s balance sheet include callable and puttable bonds as well as convertible bonds.

Contingencies include potential management action such as share buybacks which lever up a balance sheet, rights issues which delever it and M&A transactions which usually worsen the capital structure. The change of CEO at French pharmaceutical company Sanofi-Aventis resulted in the company going on an acquisition spree with sharp changes in the company’s capital structure. Only strict covenants could have protected the creditor from such actions with unsymmetrical risk-reward profile between shareholders and creditors.

Bank Capital Contingent Capital Instruments

In the banking sector, post the bank bailouts of 2008-09, new hybrid instruments have been talked about which would convert into equity in times of crisis. That is good for senior creditors and depositors, but not so for the investors in the hybrid instruments- which incorporates the worst features of debt and equity- no upside if the bank performs well, but only downside risk of getting converted into equity at the worst possible moment for a shareholder. Of course, they would benefit if after wiping out a portion of the original equity, the bank recovers from that point and the booty can be shared by fewer shareholders. In

November 2009, the Lloyds Banking Group of the UK proposed to convert its existing debt into £7.5 billion of contingent core Tier-1 capital. This would convert to equity if the bank's cushion of equity capital falls below 5%.

In reality, all these silly solutions would not be necessary if a bank's senior lenders are told by the regulators that there would be no bailouts for them if a bank runs into trouble. That would ensure that these senior creditors would put in covenants in their loan agreements that prohibit banks from investing in Level 3 assets or leveraging themselves beyond a point.

Convertible Debt and Puttable Bonds

The accounting standards require valuing all liabilities, including those that are convertible into equity at fair value. So, when the market price is far higher than the conversion price, the valuation of the liability would be close to the equity valuation, while if the market price is below conversion price, the value of the conversion privilege will come only from the time value of the embedded option and not from the intrinsic value. However, from a creditor standpoint, until conversion, the instrument must be treated like debt as market price of the stocks can fall sharply and the debt might not get converted into equity. Optionally convertible bonds get converted to equity if the stock is performing well but do not get converted otherwise. So precisely when a creditor requires a cushion, the cushion is unavailable as the holders of the convertible do not convert. Hence, for all analysis, optionally convertible bonds need to be treated as debt.

In the case of puttable bonds, they could be put onto the issuer for two reasons. It could be because, in an environment of rising rates, the value of the bonds would have fallen. Or it could be because the credit quality of the issuer has deteriorated and the credit spreads have widened. Under these circumstances, the credit analyst needs to consider the put date as the maturity date of the bond. Otherwise, the analyst could take the scheduled maturity date as

the date of repayment. The creditor needs to worry when a financing institution such as a bank issues a lot of puttable bonds. It can drastically alter the asset-liability profile of the institution.

Callable Capital

Callable capital is common for multilateral financial institutions such as the IBRD, MIGA etc. In those cases, individual sovereign states who are the suppliers of capital funds for the institutions are unlikely to back out of their commitment to supply capital when the need arises as that would cause erosion of national prestige. In any private sector environment it would be too liberal to rely on such capital getting paid in, unless one knows the financial strength of all the parties who have committed capital and contractual agreements are there in place to ensure that capital would be supplied the moment it is needed.

Tier I hybrid capital instruments can be viewed as callable capital as not only can a bank regulator prevent the servicing of such instruments if the bank encounters financial stress, but unlike in the case of Tier II capital instruments, the interest is non cumulative- i.e.- the foregone interests will never have to be paid. So, senior creditors to a bank, for their stress scenarios, do not have to worry about interest payouts to the holders of such capital instruments. An added advantage, from the senior creditor's perspective is that the Upper Tier II and Tier I instruments (as discussed in detail in the chapter 4), do not have to be called- effectively making those perpetual instruments like hard equity. However long term senior creditors should not be too thrilled at this prospect as this effectively would shut the bank out of future issuances of such instruments, impinging long term credit quality. Also the instruments have coupon step-up if not called as scheduled, causing interest payouts to jump up. But in the short run it is a cushion for senior creditors.

Share buybacks

Share buybacks are contingent events which can suddenly change the protection available to creditors if the debt equity ratios post the buybacks do not violate covenants in loan agreements. The likelihood of this event occurring is linked to management risk appetite. Hence we discuss this in greater detail in chapter 9.

Rights Issues

A rights issue by a company is a contingent event with positive implications for the creditor. However companies seldom come up with rights issues with the benign intention of providing succor to creditors. Chances are management has planned a nasty surprise ahead such as an M&A transaction, which might skew the capital structure further towards debt.

Key Takeaways from this Chapter

If from a source of liability it is probable that a loss would occur and the amount of the loss can reasonably be estimated, a company would have to book the loss in its financial statements. If either of the conditions is not met, the company does not have to accrue the loss in its income statement but make a disclosure of its potential to inflict harm. Contingent liability is one aspect of credit analysis that analysts pay insufficient attention to. Yet, as many companies are increasingly trying to get business and revenues today and push the bad news into the future, the importance of contingent liabilities in credit analysis is only likely to go up. The shape of future contingent liabilities is also likely to be very different from those in the past.

In the past, contingent liabilities crept up and shocked the management as well as investors equally. They usually occurred due to product liability lawsuits such as those from damages caused by asbestos. Even when managements were complicit and fully aware such as in the case of the tobacco liability issue, managements were shocked when they were hit by multi

billion dollar damages. Because damages from product liabilities take some time to crystallize, it provides creditors with adequate notice of trouble ahead -so that they can quietly take the exit door.

The contingent damages of the future are likely to emanate from mispriced extended product warranties and extended service contracts. Pure manufacturing companies are moving away from their practice of providing a limited period product warranty towards providing extended warranty and service contracts that are priced upfront. This move to an integrated manufacturing and services model is great news for creditors if each of the legs of cost (most of which are priced upfront)- cost of goods produced, simple warranty and extended warranty are priced correctly. When priced correctly, these service contracts provide an annuity like income from each sale. Priced incorrectly, this is no different from the horrible assets on an investment bank's balance sheet which initially generate profits and bonuses through marking up of value of assets but come back to haunt the banks once the liquidity music stops and when even the biggest patsy in the room cannot be convinced that the assets have value.

Mispriced contingent liabilities were the cause of demise of credit insurers. We are not talking about the mispriced junk sub prime assets guaranteed or the CDOs linked to what can be called assets only by abusing the meaning of that word. We are talking about the insurers' traditional municipal finance business, where the insurers were guaranteeing long term bond issues of municipalities. The guarantee fees were fixed upfront and booked as those revenues accrued evenly each year. While this is the correct way to accruing income in the case of property & casualty insurance, in the case of credit insurance, it does not fly because even without getting into any debate you know credit risk in year 2 is more than in year 1 as visibility of earnings of the guaranteed entity becomes more and more fuzzy. Credit insurers were able to get away with it because the intensive debt financed growth in the US from the early 1980s ensured that municipalities had no issues in collecting property tax and other

revenues. Municipalities did not have to worry about pension liabilities which looked fully funded on account of asset price inflation. Not only are municipality revenues going to be lower in future, but Wall Street has securitized the municipality pension assets into current fees for the investment banks and future dud assets for the pension funds.

Mispriced contingent liabilities can occur when a construction company promises excessive performance guarantees and third party indemnities. It might seem smart to get a contract today- but the consequences will be borne by a future CEO and the creditors. Construction contracts are getting more and more competitive and project owners are farming out fixed price contracts in which contract conditions specify excessive performance guarantees for long periods post project commissioning. If such contracts are given to the lowest bidder, winner's curse can afflict the contractor awarded the contract.

The accounting standards require that contingent assets should not be recognized. But the way resources companies such as oil and gas companies carry exploration assets on their balance sheets, it involves an implicit recognition of contingent assets- the assumption that future success ratios in prospecting would be the same as in the past. The frailty of carrying value of oil and gas exploration assets is due to the fact that it is linked to costs incurred for creating assets and not linked to their revenue producing ability.

In some industries, disputes with tax authorities are a frequent occurrence and it might be regarded as a cost of doing business. But a big jump in tax liability from an M&A transaction or other management action can also cause unpleasant surprises for creditors. Such transactions also result in toying with a company's capital structure, if the M&A deals were debt financed or if they result in share buy backs. The creditors need to be convinced about a management's credibility and how likely is it that they would set out on a debt financed adventure.

Chapter 7 Return on Capital Employed

The nineteenth century American entrepreneur Cornelius Vanderbilt's steam ships smashed the monopoly ship operators on the Hudson River between New York and Albany, despite the fact they had monopoly profits which they had accrued for many years. He managed this by passing the benefits of lower operating costs and higher return on capital employed to his customers. This attracted even more clients, which further improved his return on capital employed (RoCE). The monopoly operators paid him a large sum of money to close his business. As in the case of Vanderbilt's operations, an entity having an RoCE greater than its cost of capital, on a sustainable basis is one that delivers value to customers and shareholders and immense comfort to creditors.

High RoCE is achieved through capital efficiency (deploying as little fixed capital and working capital as possible without cutting corners) and operational efficiency (using as little resources and costs as possible to produce a good). RoCE measures viability of a business- even with a high RoCE you can get into trouble due to excessive financial leverage. But that situation can be redeemed through restructuring with creditors taking over the firm. A business with low RoCE is fundamentally irredeemable and must be swiftly dismantled to prevent further destruction of value.

A company's RoCE is a function of the increase in a society's Societal Debt Ratio (SDR)- in an environment of rising SDR, most companies are favorably impacted on the RoCE front. At the peak of many countries' SDR in 2007, if a company, which had been operational for more than five years, did not have a RoCE greater than its cost of capital, chances are the company will never make money. So, a decent RoCE in an environment of high SDR might or might not be sustainable. But a high ROCE in a low SDR environment should be sustainable unless there is a change in the company's credit story.

One of the most interesting tit-bits about RoCE is the different ways in which different companies calculate RoCE. To some extent that is understandable- some adjustments have to be made to take care of the unique characteristics of different industries. But at its core, the numerator must have the returns that accrue to the different providers of capital. Capital providers do not only include providers of debt and equity –they also include other providers of debt like capital such as under- funded pensions. Ignoring the returns to underfunded pensions overestimates returns and overestimates the RoCE. What happens if a law is passed which states that a company cannot run underfunded pensions? In that case, there are two ways in which the company can fill the pension hole- borrow money /raise equity and fill the hole or charge it to current earnings, if current earnings are adequate to fill the hole.

A company's RoCE depends on which phase of a company's life cycle- venture, credit or vulture – it is operating at. In the venture phase, even if a company's RoCE is high, its sustainability is far from certain. It is at the point where RoCE is higher than the cost of capital on a sustainable basis that a company hits the credit phase, where credit investment is possible. If RoCE, over a business cycle, languishes at levels below cost of capital, the company has hit the vulture phase. During this phase, either capital has to be purged to bring RoCE in line with cost of capital or the company has to be liquidated. Capital is purged by the different providers of capital taking haircuts on their investment, starting with the shareholders. It is better for creditors if a company pays out a large dividend or does a share buyback rather than leveraging up the retained earnings with borrowed funds and investing the money in low RoCE projects or in M&A transactions with poor prospects.

RoCE must be estimated over a cycle. Even great companies can have a year or two when their RoCE falls below cost of capital due to the company being involved in large scale capital investments which are likely to provide returns in the near future. Also, great companies can have poor RoCE if demand suddenly falls off a cliff due to households or

corporations experiencing distress on account of high debt and consequently cut consumption drastically.

Creditors should worry, if on a consistent basis, growth in operating cash flows does not keep pace with growth in RoCE. In that case, the high RoCE could have been achieved on account of sales with uncollectible receivables, creation of finished goods inventory that cannot be disposed off without taking a haircut in inventory carried value or providing loans to customers to promote sales that look uncollectible. Apparently high RoCE could also be due to making various adjustments (such as losses on currency translation) directly to shareholder equity on the balance sheet, which reduces the capital employed number and boosts apparent RoCE.

Obviously companies which satisfy their country's anti-trust regulations such as the Sherman Act of the US, but only barely, would be a source of comfort not only for shareholders but also for creditors – that ensures sustainability of the RoCE. But creditors must constantly watch out because regulators might have the company on their cross hairs. There should be adequate financial flexibility in the company's capital structure to ensure survival even if there is unfriendly regulatory action.

While a RoCE greater than cost of capital over a cycle is what drives a creditor's decisions, he should also be aware of a company's return on equity (RoE). A company with inadequate RoE, despite an adequate RoCE, might cause its management, under pressure from shareholders, to resort to imprudent actions such as use of increased leverage to boost RoE. Management might also resort to other devices such as M&A activity to divert attention of shareholders reeling under poor returns vis-à-vis returns of peer group companies. All such actions act to the detriment of the creditor. The only legitimate way to improve RoE is by improving RoCE- all other financial engineering artifices do not help a creditor over the medium term.

Return on Capital Employed and the fall of Countries and Civilizations

Human societies which invented the wheel were rapidly able to leapfrog over others that had not yet done so because human efforts that were directed to inefficient motion could now be deployed elsewhere, looking for new ways to improve the lot of that society. The Mayans and the Aztecs did not see the wheel until they came in contact with the Europeans. The Aztecs were focused on wasteful expenditure in appeasing gods and depletion of priceless human resources through human sacrifices. Such unproductive usage of resources ensured that these societies lagged behind. And when the invention of the steam engine provided a vastly superior way to move the wheel, the west European countries rapidly industrialized, leaving the hitherto better off countries such as India and China far behind.

The fall in the number of units of energy and resources necessary to generate a unit of output is what makes societies and enterprises more competitive and profitable. When it is cheaper to produce a unit of output, the producer can cut his selling price- which further increases volume of sales through increased market share.

Human creativity is directed towards two broad purposes- first to reduce the resources required to produce existing goods and services and the second to produce new goods and services. Credit can be used for the first endeavor while financing the second pursuit falls within the realm of the venture financier.

Under normal circumstances, capital flows to where it can be used most productively.

Unproductive human endeavor funded by debt result in non performing assets for lenders.

The Soviet Union fell when it used its resources for unproductive empire building. Unlike the British Empire which exploited the resources of the conquered territories, the Soviet Union ended up subsidizing the conquered territories. The Gosplan, or the State Planning Committee ensured that societal resources were misallocated and drove the Soviet empire

into bankruptcy. The Chinese people are in for a shock when they find out that their savings, generated through toil, sweat and tears and deposited in banks had been deployed in low return on capital activities by a tyrannous regime and needs government bailout at some point in time.

What Earnings?

If a company does not have a clear idea of its earnings, within a certain narrow band, it could lead to mis-pricing of products and services and misallocation of capital. Misallocation of capital drives the company on a downward spiral as it finds itself hard pressed to service loans. It leads to unhappy shareholders as the retained earnings of the company yield very low returns.

Understanding the quirks of an industry's accounting is critical- otherwise one don't know if one is estimating the earnings correctly. The earnings number of interest to a credit analyst is the earnings before interest and tax (EBIT), unadjusted for so called "one time expenses". Such "one time expenses" occur every cycle to purge the unproductive assets post a boom. So, a credit analyst, who is not interested in returns for a single year but over a cycle, should not take cognizance of these adjustments.

Comprehensive Income versus Net Income

There are several costs which a company directly adjusts through its balance sheet instead of running it through the income statement. If this effect is not considered, you might end up overstating the true return on capital employed. If the adjustments made in the balance sheet have the effect of reducing shareholder equity, they, in effect increase the gearing of the company and hence reduce the company's ability to borrow further. This might come in the way of the company carrying out essential capital expenditure.

The way around this is to look at the comprehensive income as defined by SFAS 130 of the FASB, "Reporting of Comprehensive Income". The standard considers the effect of the income reported in the income statement (called the "net income"), the adjustments made in the balance sheet (called "other comprehensive income") and calls the combination "comprehensive income". FASB requires all components of comprehensive income to be clearly reported. Within "other comprehensive income", each of the components that are directly considered in the balance sheet such as foreign currency items (gains and losses from currency translation), employee benefits (gains and losses associated with pension and post retirement benefits) and investment portfolio items (gains and losses associated with certain debt or equity investments) need to be reported separately.

Why is all this relevant to a credit analyst? Indeed, it is rare to find a credit analyst who obsesses about the distinction between net income and comprehensive income. However, if a company has been adjusting upwards certain liabilities directly in the balance sheet, it will end up giving the impression of strong earnings while ignoring the weakening of the balance sheet. And the balance sheet is the true indicator of the quantum of future earnings. Consider a company whose balance sheet shrunk in a year, on account of fall in shareholder equity, but whose net income was the same as last year. Because the asset base in the second year is smaller, the return on capital employed actually jumps up because the denominator falls in value. The correct procedure is to adjust the EBIT for "other comprehensive income" in the numerator of the return on capital employed calculation and leave the denominator intact. If the "other comprehensive income is positive on account of improper hedging activities, the creditor should be aware of the enhanced risk. The RoCE calculated taking into account "other comprehensive income" helps a creditor assess if the returns obtained are sustainable or have been achieved through weakening of the balance sheet.

A classic example of securing higher short term profits through weakening of the credit story and the balance sheet occurs at firms bought out by private equity shops. This has been borne out by several studies which show that IPOs of firms taken public by these shops tend to under perform the broader market indices and other IPOs.

Share based Payment and Compensation

For a long time, many companies, particularly California based technology companies, pretended that share based compensation such as stock options or payments in stock options to other companies for services rendered had no cost implications. Such was the lobbying power of those firms that it took a long while before the silliness of those arguments was exposed and stringent norms were passed by accounting bodies to ensure that such costs were properly accounted for. The arguments put forth in SFAS 123, “Accounting for Stock based Compensation” are worth reading.

The obvious question is how does this shenanigan matter to a creditor? After all, the consequences of the share based payments would be felt by shareholders as their earnings get diluted. Should not the creditor be thrilled if all compensation is paid in securities subordinate to his interests (the settlement of shares, unlike cash payouts, is subordinate to creditor claim). A creditor cannot go along with this argument. What if shares perform badly in the market, the current employees get discouraged and leave and new employees have to be hired who insist on cash payments? When that happens, the whole cash flow dynamics of the company changes for the worse. Hence the creditor would be wise to consider the share based compensation just like the shareholders do for calculating EBIT and RoCE.

What value should be ascribed to those share based compensation costs? While one can be skeptical of the values calculated from the Black Scholes and other models (discussed more in chapter 10), it does not really matter. If everyone, including the employee is comfortable

ascribing value to the options based on the Black Scholes formula, the creditor should be okay with that. After all, if an employee, based on the Black Scholes formula, is ascribing a value of \$100,000 to his options, it does not matter if the real value is \$50,000 or \$200,000, because tomorrow, if he does not want to have his compensation in the form of options but insists on cash payout, he is going to demand \$100,000, not \$50,000 or \$200,000. The creditor, hence, is fine going along with the consensus reality of stock option asset valuation.

Revenues linked to Costs

Companies whose costs and revenues are closely correlated, i.e., they can pass any increase in costs to customers are obviously better off, from a creditor standpoint than companies whose revenues follow a different dynamics from costs. Creditors can tolerate higher debt in the balance sheet of such companies. In the case of regulated electric utilities in some countries, the company's revenue covers all costs (including debt service costs) besides assuring a certain return on the equity capital employed. In the case of construction companies that take up only cost plus contracts, all costs related to a particular contract are covered. But not all costs of operation are covered. For instance, if the company does not have any contracts in hand, it still incurs fixed costs such as salaries of engineers etc. The cost linked model applies to companies which have to pay a portion of their revenues as license fees/royalties. Such companies incur other fixed costs even if no sale is consummated. Companies which take assets on operating lease instead of buying them outright might incur higher expenses in the normal course of operation, but such leases bring in tremendous flexibility that is priceless in industries with high operating leverage. In good times, this reduces net earnings (which a creditor is indifferent to, since in good times, there is adequate revenue for debt servicing), but in bad times, it brings down fixed costs.

Contingent Costs and Revenues

Over the last two decades, many company managements have shifted to the mantra of “here and now”. That involves worrying about showing good net income today, even if all the costs have not been correctly accounted and a chunk of today’s costs shifted to tomorrow. The problems then pass on to the broad shoulders of another CEO, who usually marks the beginning of his reign of the company by taking a one time charge. There are several ways in which companies can understate their current costs. It could be giving extended warranties and performance guarantees that are not correctly priced. Such warranties attract customers who jump in to take advantage of something offered at an artificially low price. It also enables the company to immediately book higher revenue from the cash flow from the warranties (obviously all cash flows connected with the warranty cannot be booked upfront). In some cases, such enticing warranties not only attract customers to those contracts- they also result in higher sale of the products of the company. And higher the units of products sold at the wrong price, the more the damages to be suffered later. The goodies can also take the form of “loyalty points” such as frequent flier points etc. Priced correctly, it is a fantastic tool to bind the customer to the company. Priced improperly, they set the foundation of tomorrow’s credit quality weakening. The insurance business is the biggest industry where business volumes (and reported profits) can be generated immediately by mispricing costs- and pushing troubles to another day when claims have to be paid out.

Similarly, a company which might be cutting corners to reduce today’s cost of production will see higher costs tomorrow from product returns and product recalls. And cutting costs by underinsuring is putting one’s fate solely at the hands of fate. Additional costs would also be incurred tomorrow by companies which resort to “slash and burn” employee practices today- the quanta of the additional costs cannot be readily estimated. “Slash and burn” induces unethical practices which have their own costs.

Contingent revenues such as trading income just cannot be factored in for credit analysis. For companies which rely on such income, the creditor has to rely purely on two issues- what is the loss given default (LGD) if the loan were to turn turtle today, and what is the maximum trading loss possible during the currency of the loan. If either of the factors cannot be estimated, such a company is not creditworthy.

Capital Structure effects and Costs

Some costs should be capitalized in the balance sheet- others should be booked in the income statement immediately (see Accounting Box: Capitalized Expenses). Accounting standards permit certain costs such as losses on account of translation of foreign currency earnings to domestic currency to be booked directly in shareholder equity rather than through the income statement. Movements in foreign exchange rates can reduce or increase the competitiveness of firms. So, to study the impact of currency movements, the credit analyst must in his calculations incorporate losses from currency translation as a part of costs. Also, for capital employed calculation, the analyst should not reduce shareholder equity so that the amount of capital deployed in the business to generate a certain return in domestic currency is properly estimated. In the same manner, any increase in pension liabilities in the balance sheet in a given year should be added to costs for return calculations. After all, not according full value to the increase in pension liabilities (unless it has been due to sharp fall in stock markets in a particular year) would result in understatement of employee costs.

How does one look at a company reducing its balance sheet size by exiting a certain line of business. In particular, how does one handle the costs associated with exiting a business? Obviously, the credit analyst is interested in looking at future returns and not at the past. Hence, he would welcome the prospect of a company exiting a business that is a drag on overall earnings. What the analyst must ensure in his analysis is that the company does not

mix other costs (costs of continuing business) with the restructuring charge taken for exiting a business.

While the calculation of EBIT is immune to factors such as whether the borrowing is short term or long term, whether the borrowing is in fixed rate of interest or floating rate, a company's solvency does depend on that. We had seen in chapter 4, if the values of assets sharply fall in response to interest rates or liabilities sharply increase, the effect is to reduce shareholder equity. In the extremis, this can cause insolvency. German bank Hypo Real Estate's subsidiary DEPFA got into trouble by financing long term government loans with short term liabilities. You would do an RoCE calculation only post a stress test, after you are convinced about the company's solvency and the company's credit story.

In the case of minority interests, the fraction of earnings ascribable to minority interests must be deducted from EBIT. In the denominator of the RoCE calculation, minority interests should not be considered. No such adjustment has to be done for equity method investments in associate companies.

What is the Capital employed?

The capital employed by a company in its business is the difference between the total liabilities of the firm and its current liabilities. Through increasing its current liabilities by increasing the payable days to the extent that it is reasonably possible, a company can decrease the amount of capital it has to deploy, thus magnifying its RoCE. Customer advances in businesses such as ship building also help to reduce the capital that needs to be deployed. Obviously this definition includes items such as unfunded pensions. Unfunded pensions are like debt- only worse to the extent that their true quantum become unpredictable if stock markets move unfavorably.

If a company continuously yields low returns, it means that the providers of capital- equity and debt might have to write down their investments to more reasonable values. The low yield could be because of overpaying for an acquisition or because of obsolescence of property, plant and machinery. In either case, it makes sense for a new creditor to be involved only after the current providers of capital have written down their investments to more reasonable values so that returns greater than the cost of capital can be generated. Current creditors, from this analysis, would know whether the cost of write downs would be borne only by shareholders, or thanks to a leveraged balance sheet, they too would be invited to make sacrifices.

Low return on capital employed could also be on account of mismanagement. Management which is not putting a company's assets to optimal use is a drag on shareholder returns and creditor protection. However this problem can be solved by replacing management and shareholders and creditors do not have to take long term haircut on their investments.

Accounting Box: Capitalized Expenses

IAS 23 describes which borrowing expenses should be capitalized and which should be expensed. It summarizes the whole standard in the following manner-“borrowing costs that are directly attributable to the acquisition, construction or production of a qualifying asset form part of the cost of that asset. Other borrowing costs are recognized as an expense”. The standard goes on to describe a qualifying asset as an asset that necessarily takes a substantial period of time to get ready for its intended use or sale.

Obviously the return on capital employed of two companies cannot be compared unless the interest capitalization happens on a consistent basis. IAS 23 leaves no room for ambiguity on what should be capitalized and what should not be. When comparing the performance of a company which does not report its numbers as per IFRS or compatible standards, appropriate

correction needs to be made whenever there could be a material impact. The item in the income statement, the earnings before interest and tax does not get impacted whether interest expense is booked in the income statement or not. However, the erroneous capitalization can overstate the assets. Since that would decrease the value of return on capital employed, the wrongful capitalization merely understates the RoCE- in effect making the result more conservative. However, overstating the value of assets understates the gearing of the balance sheet, and hence overstates expected recoveries should a loan turn sour. Also, excessive conservatism is not a good operating procedure because it might cause the rejection of attractive investment proposals. Though type II error (excessive skepticism in non- statistical parlance) is better than type I error (excessive optimism) from a creditor standpoint, foregoing good opportunities is never a good idea. Conservatism cannot be an excuse for lazy analysis.

A corollary to capitalization is the requirement of IAS 23 to suspend capitalization of borrowing costs during extended periods in which a firm suspends active development of a qualifying asset. Also, an entity is required to cease capitalizing borrowing costs when substantially all the activities necessary to prepare the qualifying asset for intended use or sale are complete. A credit analyst should also pay attention to the two disclosures required under IAS 23- the amount of borrowing costs capitalized during a period and the capitalization rate used to determine the amount of borrowing costs eligible for capitalization.

RoCE Metrics on Du Pont Lines

A variation of the Du Pont analysis is very useful for credit analysts. The Du Pont analysis breaks down return on equity into three components- net profit margin, asset turnover and gearing.

Return on Equity (RoE) = Net Profit/Equity

$$\text{RoE} = (\text{Net Profit/Sales}) \times (\text{Sales/Assets}) \times (\text{Assets/Equity})$$

$$\text{RoE} = (\text{Net Profit Margin}) \times (\text{Asset turnover}) \times (\text{Gearing})$$

In a similar way, one can break down RoCE as follows

$$\text{RoCE} = (\text{EBIT/Sales}) \times (\text{Sales/Assets}) \times (\text{Assets/Assets} - \text{Current Liabilities})$$

$$\text{RoCE} = (\text{Operating margin}) \times (\text{Asset turnover}) \times (\text{Assets/Capital employed})$$

This helps the credit analyst to identify the key driver of return at a company and focus on that and not waste time on irrelevancies.

For Banks- Return on Assets is the correct Measure of Viability

For a financial institution, RoCE is not the correct metric for assessing credit risk. For a traditional bank, (not a hedge fund masquerading as one to take advantage of government backstop facilities), since interest is the most important cost item, EBIT is not very useful. Absolute value of interest rate of borrowing (cost of interest bearing liabilities/ interest bearing liabilities) is not as information dense as the following parameter:

$$\begin{aligned} \text{Net profit margin} &= \text{Yield on interest bearing assets} - \text{cost of interest bearing liabilities} \\ &- (\text{default cost/interest bearing assets}) - (\text{operational expenses/ interest bearing assets}) \end{aligned}$$

This parameter is relevant only for the core bank lending book. Looking at each of the drivers of the parameter such as yield on interest bearing assets, default rate etc in isolation does not reveal anything. A bank might have high yielding assets, but that benefit might be eaten away by high default rates. A bank might have high operational expenses for conducting due diligence of its retail pool of loans, but that would be compensated by low default rates. A bank branch that is underwriting loans might also be a procurer of deposit funds, which reduces its operational expenses. A bank having a number of retail branches might have high operating expenses, but it might translate into lower cost of funds on account

of access to cheap and lasting current and savings account funds (as opposed to costly and unreliable wholesale funding). The net profit margin helps the creditor to the bank assess the cushion available if default rate on loans go up. If there is a big difference between the tenures of the assets and liabilities, the creditor needs to stress test for solvency before calculating the net profit margin. Else the net profit margin might have been achieved by running ultra-high asset liability mismatch risk which would not be sustainable.

The bank's fixed income investment book can be analyzed exactly like the banking book. The equity investments should be small and in reasonably sound companies so that the investments do not sharply lose value.

We had mentioned in chapter 4 that when the trading business dominates in a bank, creditors have no business being around. So, it is taken as a given that the institution that the creditor is analyzing is one with a small or no trading book. Basically, the creditor should be able to evaluate the potential havoc that trading can wreck. If he can't, the bank is not creditworthy.

When one considers all these factors, the return on assets is the right metric for a creditor to evaluate for assessing bank credit worthiness. This ratio, besides measuring the net profit margin on the lending book, also considers the effect of steady fee based income that the bank generates from activities such as opening letters of credit, income from distributing financial products such as insurance etc. Basically, it gives an insight into how efficiently the bank is using its branch network to secure additional income. The return on assets metric has to be compared to the ratio of the bank's interest costs to its total assets. This comparison also tells one of the leverage of the bank- the lower the leverage, the lower the interests cost and hence lower the ratio of interest costs to total assets.

Operating Leverage is horrendous for Creditors without a stake in the upside

Operating leverage is the sensitivity of operating earnings to sales. A creditor can view operating leverage as the percentage of fixed costs to total costs in the cost structure. High fixed costs usually occur on account of high upfront capital expenditure required in those industries. That results in high depreciation expenses on a continual basis. High depreciation is not a big issue for creditors in capital intensive industries such as utilities, where there is assurance of off-take of the firm's products at a particular price. The challenge occurs when high capital intensity is coupled with a highly competitive and cyclical industry.

When a company has done a lot of upfront investments, if demand and capacity utilization fall, the company has an incentive to try to recover as much as possible of the sunk capital expenditure by cutting prices of output so that, while variable costs are fully recovered, fixed costs might be only partly realized. This does not affect the short term creditor, unless the company is overleveraged, because when the company does recover some fixed costs, its free cash flows usually stay positive. However, plunging equity returns and share prices might induce managements to do foolish things such as share buybacks. Alternately, they might set out on an industry consolidation cruise by rushing into a rash of takeovers to divert the attention of shareholders.

Even if the company is able to service short term debt, long term debt servicing is always under threat if the RoCE stays low. The way around this, for creditors who do not mind taking on equity risk is (the moment the company starts falling back on its debt servicing commitments) to convert their debt to equity after practically wiping out current shareholders. Industries with high operating leverage also recover very sharply, and the immense profits to be had can more than compensate the creditor. But the creditor should be aware that he is taking on venture risk. However, this does not occur in industries such as semiconductors, where in addition to being capital intensive and cyclical, the industry has a

high obsolescence rate, which renders the old capital expenditure useless. We discuss in the section below why creditors do not really fit into the scheme of things in the semiconductor industry. Creditors have a better chance in the airlines industry because the airlines can offload their capital expenditure on to others through the airplane lease model. The “fabless” model of semiconductor companies is not similar to the airlines’ lease rental model- at least for creditors as discussed later. The airline Industry’s operating lease model reduces operating leverage – such a model cannot be duplicated in the semiconductor industry. Also, the old capital expenditure, if the airline owned its airplanes, does not become useless unlike in the case of semiconductors. In the latter industry, complete retooling is required for producing each new generation of semiconductor chips.

Semiconductor Industry: Those who need Credit can’t be given, Others don’t need it

The semiconductor industry is certainly not one which Warren Buffet would have approved of- at least not the manufacturing bits of it on account of the colossal amount of continuous cash infusion that the industry requires for upgradation of plant and equipment.

Semiconductor manufacturing facilities, called fabs, take many years to plan, construct and commence operations. So, investments decisions have to be taken long before one can have reasonable certainty that the output of the factories will be sold. Normally the extreme capital intensity of the industry would have served as a barrier to entry and protected the operating margins of the incumbents. However this has not happened because of the national prestige associated with this industry (particularly in Asia and Germany), which has caused governments to keep alive zombie chip manufacturers through subsidies and other state support. Taiwan makes more than half the world’s semiconductor chips. Though there are many basket cases, the list also includes Taiwan Semiconductor Manufacturing Company, a company with superb RoCE.

The unattractive economics of the business has caused many large companies to bail out of the business by spinning off their semiconductor businesses into a separate listed company. Germany's Siemens AG spun off its chip business in 1999 as Infineon Technologies while Motorola spun off its semiconductor business into Freescale Semiconductor in 2003. NXP was a part of Dutch electronics firm Koninklijke Philips Electronics NV till 2006. Elpida memory of Japan came into existence in 1999 by combining the DRAM business of Hitachi and NEC. Four years later, it took over the DRAM business of Mitsubishi.

Because of sharp cyclicity of the industry and rapid obsolescence, inventory value has to be tested for impairment at the first whiff of an economic slowdown. Inventory valuation also becomes critical when there is underutilization of plant capacity. Obviously during those times inventory value would be overstated if the high cost of the installed capacity is included with the inventory value (because in such an environment, it is unlikely that the inventory will be realized at that value). The better method, followed by most semiconductor companies is to take an additional cost hit in the income statement for unutilized capacity.

The industry has five major categories- a) manufacturers of temporary devices called memory chips, b) makers of microprocessors c) manufacturers of low margin integrated chips dominated by Asian foundries d) manufacturers of higher margin systems on a chip such as Microtek and e) fabless chip makers such as Qualcomm who own valuable patents.

Implications of Moore's Laws for Semiconductor Industry Credit Quality

In 1965, Intel co-founder Gordon Moore came up with certain observations on the progress of the semiconductor industry which came to be known as Moore's laws. The laws, based on empirical observations, have held on fairly well till now. The first law states that the number of transistors that can be placed on an integrated circuit (or a chip as they are popularly called) doubles approximately every two years. According to engineers, the law will hold on

for many years into the future until nature imposes limits at atomic levels. The implication of this law is that processing speed, memory capacity etc will also go up at this exponential rate.

Moore's second law follows from the first law. Due to the first law, computer power to the consumers continuously rises as the cost per transistor halves. However the cost to the producer, to fulfill Moore's first law, follows the opposite trend as R&D cost, equipment for manufacturing and manufacturing costs of chips goes up exponentially for each generation of chips. So, the capital costs for setting up a fab increases exponentially with each generation. Around the time Moore penned his law, a new fab cost \$14 million to set up. Now, according to Intel, a new fab costs \$6 billion. In Taiwan, Taiwan Semiconductor Manufacturing Company (TSMC) has set up two "Giga-Fabs", each costing more than \$8 billion. So, if you did not have the financial muscle to set up these godzillas ("Size does matter" as the movie by the name proclaims), employing as little debt as possible, you are out of the game even before the opening whistle. If you do not follow TSMC's capital expenditure program, you have two choices open before you. Either get out of chip manufacturing altogether and merely focus on chip design, i.e. become a "fabless" company. Or you spread the risks of capital expenditure with other firms. IBM, Infineon of Germany and Samsung Electronics of South Korea have paired together to develop chips. Some, like Texas Instruments, a US consumer electronics firm, have adopted the middle path (the "fab-lite" strategy) - wherein they manufacture some chips while they outsource the manufacture of other chips.

It is this required capital expenditure that mandates high fixed costs for the industry and drives the players into unhealthy pricing practices at the bottom of a cycle. Because of fixed costs dominating the cost structure (depreciation of fixed assets being the biggest item), it makes sense for the semiconductor companies to keep operating their fabs as long as they cover their variable expenses and recover some element of their upfront investment. For instance, in 2007, Taiwan's United Microelectronics had fixed costs that amounted to almost

70% of total costs. This holds for all producers within a narrow band- hence there is a continuous downward pressure on prices. Such is the pressure that manufacturers resort to price fixing as the only way out. Between 1999 and 2002, Korea's Samsung, and Hynix and Germany's Infineon Technologies resorted to price fixing of dynamic random memory (DRAM) chips- for which they had to pay huge fines to the anti-trust authorities in the US.

Having understood the economics of the industry, Intel continuously expanded its capacity before other players understood the rules of the game and today accounts for more than 80% of global microprocessor revenue. TSMC followed the Intel line- however it enjoys lower return on capital employed on account of its smaller trove of intellectual property and on account of Intel's vice like grip over end users. Moore's laws ensure that unless you have fantastic financial strength you won't survive- there is no room for plodding along as in other industries. So those who need credit in this industry should not be given because they will not be able to service it- those who don't need it are creditworthy. Moore's laws imply creditors have a limited role in this industry.

Design wins Risk and single Customer dependence makes Chipset Makers Uncreditworthy

A chipset (systems on a chip) maker makes semiconductor products that go into an OEM's equipment such as cell phones, cars etc. In a chipset, several products such as analog, digital and memory circuitry are combined into a single chip. To secure an order from an OEM, the chipset maker must win a competitive bid selection process. This is known as a "design win" in industry parlance. The selection process is lengthy, and requires the chipset maker to incur a high amount of design and development expenditure. And if a competitor's design is selected by the OEM, all the upfront design and development expenses incurred goes down the drain. In fact, the loss of design win is not like an EPC contractor loosing a bid. The EPC contractor lives to fight another day. In the case of the semiconductor business, the loss could result in the failure to be able to create a generation of products on account of rapid

change of technology. Once that happens, the company would not have access to that OEM for several years. And the longer the design cycle the worse it gets- particularly in the automotive industry. Several design losses could put at jeopardy a company's reputation and the chance to win future orders.

Leading chipset companies include Geneva based ST Microelectronics, Germany's Infineon Technologies, Holland's NXP, Freescale of the US and Microtek of Taiwan. Most of the chipset makers are highly leveraged and have gloomy prospects. It is also hard to forecast which of these companies will survive and which ones will get continuously leveraged until they collapse under the weight of their debt.

NXP, an offshoot of Netherlands' Philips Electronics has had operating losses in 2006, 2007 and 2008. Its shareholder equity plunged from €4.5 billion at the end of 2007 to slightly over a billion Euros in 2008 even as debt and provisions increased. Its cost structure had limited flexibility- it had an agreement with Singapore's Silicon Manufacturing Company Pte Ltd, (SSMC) wherein NXP is required to make cash payments to SSMC should the company fail to off take a certain agreed upon percentage of available fab capacity and if SSMC's own capacity utilization falls below a certain minimum level. The company took a massive write down of assets like goodwill and intangible assets in 2008 as these were unlikely to generate returns commensurate with their carrying values.

Infineon Technologies seems to be aware of the notion of profitability only from hearsay. In addition to its numerous woes, the company's memory chip making subsidiary Qimonda made huge losses and finally filed for insolvency in early 2009. Shareholders' equity plunged from €4.9 billion in the year ending September 2007 to €1.7 billion in the year ending September 2008. There had been a systematic destruction of value at this company.

Only a miracle will save Freescale Semiconductor in its present form. The company did a coercive debt exchange in March 2009 after posting a net loss of \$ 7.9 billion in 2008, which included write down of \$0.4 billion of good will and \$ 1.6 billion in intangible assets. At the end of 2008, its shareholder equity was substantially negative and debt was around \$10 billion. Motorola offloaded its semiconductor assets and liabilities as Freescale in 2003. In 2006, Freescale was bought out by a consortium of private equity shops whose financial strategy involved leveraging up the company, already groaning under debt and poor business prospects, thus adding financial risk to the poor credit story.

When you are a chipset maker, you have to bet on two happenings- the end consumer demand staying high and also that the customer to whom the chipset maker is supplying would continue to do well – in effect, it is betting on the horse and the jockey at the same time. For example if you are a supplier to a mobile phone maker you have to bet first that you will have a design win with mobile maker. If you win, you have to pray that the products of the mobile maker do well in the market- only then he will demand your produce. It is this two stage uncertainty that makes this business model by and large unviable from a creditor standpoint.

Adding to the poor credit story of those companies, the fortunes of the chipset makers are linked to a few customers. Cell phone maker Nokia, on an average, accounted for almost 20% of ST Microelectronics' revenue. Motorola accounted for 23% of Freescale's sales in 2008 and the top 10 customers accounted for 53% of net sales. Motorola has been yielding space in the mobile phone market- that does not augur well for Freescale. Broadcom is a leading system on a chip player in the communications devices market. Sales to the top 5 customers accounted for 40% of its revenues. If you are a supplier to many players of a particular industry, you are not affected if one OEM gains market share- the winner will demand more supplies while the loser will demand less. Problem arises if you supply to one OEM in an industry and that OEM loses market share.

Third Party Foundry Relationships: Does it really reduce Risk to the OEM?

The fashionable new mantra in the semiconductor industry is the so called “asset light strategy” wherein a company tries to offload as much as possible the investment requirements for building new fabs to third parties. Does the whole idea make sense for the institution doing the off-loading? For instance, if the off loading company could not make money out of the chip manufacturing business, what is certainty that the third party to whom this task is offloaded will survive and not expose the off loader to the risk of tripping the supply chain? Off loading makes sense if the off loaded entity is one of the following two types- a profitable foundry having amazing scale and not leveraged (such as Taiwan’s TSMC), or a foundry that is sure to be kept alive through government subsidies on account of “national pride” linked to the chip making industry. If the offloaded entity does not fall in one of the above two categories, the company planning the offloading will put its own existence at peril. Asset light strategy is certainly not the mantra for survival for weak players such as Freescale Semiconductor, NXP, who believe that limiting their investments and hence reducing the fixed costs in their capital structure would help them better weather industry downturns. The whole asset light strategy has similarities with what happened in the US auto industry- GM thought it was reducing its risk when it offloaded Delphi and Ford when it offloaded Visteon into separate companies. Offloading to get out of a business in one thing- offloading downwards along the supply chain does not help unless there is labor arbitrage involved and not passing the buck on capital expenditure requirements.

The Memory Chip Industry- A veritable Graveyard of Capital

The memory chip business is the most competitive part of the semiconductor industry. It is an area that sees rapid technological change and hence high R&D expenditures are a must. High and continuous capital expenditure on account of short product life cycles and hence

severe pricing pressure as companies try to recover, as much as possible, their upfront investment, is a fact of life.

Samsung Electronics and Hynix Semiconductor of South Korea are the world's biggest memory chipmakers. The other players include Elpida Memory of Japan, Sandisk Corporation of US and Qimonda AG, the subsidiary of German semiconductor company Infineon Technologies. Qimonda had filed for insolvency in early 2009.

Other than Samsung Electronics, the other players have destroyed a considerable amount of capital. Founded in 1969, Samsung Electronics is the most important subsidiary of the Samsung group. Since the company introduced the hugely successful DRAM chip in 1994, which generated a huge amount of cash, the company has not looked back. Samsung has two major advantages over the other players in the memory industry. Firstly, the company derives most of its income from the consumer electronics business where it is a market leader. Only 20% of its sales come from semiconductors. This helps it better withstand the cyclical nature of the memory chip business. The second factor is an extension of the first one- because other businesses generate huge amount of cash in a more steady fashion, it can carry out the huge capital expenditures required without leveraging up the balance sheet too much. That positions it to reap the benefits when the memory chip industry dynamics turns favorable. Unless the company falls behind in its R&D efforts, the company should be one of the few winners in the semiconductor industry.

Other than Samsung, there are few bright spots in the memory chip industry. In 2009, Taiwan's central government announced a plan to take over six memory chip companies and combine them into a single entity Taiwan Memory Company (TMC). For its technology partner, TMC chose Elpida Memory of Japan. Elpida itself made operating losses in the year ending 31st March 2009 to the tune of \$ 1.5 billion. The heavy losses of 2008 and 2009 more than wiped out the operating earnings of the previous three years. Throughout this period,

the company continued with its huge capital expenditure program. The debt equity ratio jumped from 0.22 in FY 2005 to 2.71 times in FY 2009. The ballooning debt cannot inflate forever and unless there is a temporary relief in the form of higher DRAM prices, the capital destruction will continue unabated.

Sandisk, a California based flash storage card maker (flash storage technology allows data to be stored even when power is switched off and is used in cell phones, digital cameras and laptop computers) is a classic case of a company with absolutely no control over its destiny, and hence not having a credit story. Its top 10 customers accounted for almost 50% of sales. Operating losses in 2009 wiped out operating earnings of several previous years. The increasing leverage of the firm makes it an entity whose survival possibilities are very fragile. There might be temporary flashes of lightning- but providers of capital would do well to remember that it is more heat than light and that they will not be compensated for the risks.

Capital Destruction in Asia's Foundries

In the countries of Asia, having fabs is regarded as a symbol of national progress. Hence, the governments keep pouring billions of dollars into the business despite its very terrible economics. Other than TSMC, all the players are also-rans who not content with destroying shareholder value also guzzle huge amount of taxpayer funds. We had already discussed why TSMC is such a success. Its competitors do not have any of the success factors that it has. TSMC has had operating margins greater than 30% for many years. Though it also suffered steep drop in sales and operating margins in the last quarter of 2008, its strong balance sheet gives it the wherewithal to survive downturns (at the end of 2008, the company had \$5.9 billion of cash on its balance sheet). Since the cash on its balance sheet is far more than what is required for handling business downturns, the excess cash should be removed while calculating the capital employed numbers. Using correct metrics, TSMC's RoCE has been higher than 30%.

Between 2002 and 2008, Hynix Semiconductor of Korea had a RoCE of 8.8%, far lower than its cost of capital by any measure. The debt equity ratio also deteriorated appreciably.

United Microelectronics of Taiwan, Chartered Semiconductor Manufacturing Ltd, Flextronics of Singapore and the other big foundries of Asia also destroyed a huge amount of deployed capital.

Such are the terrible economies of this business that in 2008 AMD spun off its fabs into a separate company, Globalfoundries, and sold the majority stake in it to a wealth fund controlled by the government of Abu Dhabi (since the middle eastern wealth funds do not have a fascination anymore for western banks, they will find other innovative ways to loose money such as investing in semiconductors).

Intel does not need Credit, AMD does not have a Credit Story

The lesson from the Intel- Advanced Micro Devices (AMD) saga for creditors is that they have no business financing a competitor to an entity which is so overwhelmingly dominant that it sets the industry standards and rules, that all end users of the company's microprocessors fear it and which is so financially strong that it can indulge in anti-competitive practices without much ado. On the same grounds, creditors should be wary of lending to chemical companies that compete head on with middle-east based producers and steel companies that are face to face with Chinese state owned steel companies. Such companies have deep access to financial resources, can take losses till the Yangtze river runs dry and are not driven by crass measures such as return on capital employed. AMD's annual reports are an endless litany of woes of how Intel can finish it off like a giant swatting a gnat anytime it felt like.

To sum it up, Intel thanks to cutting edge engineering and business strategy based on a clear understanding of Moore's laws stays many steps ahead of the competition and hence requires

no debt financing, while AMD, from start to finish just did not have a credit story. Initially, it was a venture story- now probably there does not even lurk a vulture investing story (how does an investor seeking deep value even spy any thing there?). The only way AMD could have had a credit story was if one of the Middle-east sovereign wealth funds, perpetually seeking the next not-too smart next investment idea, had acquired it, underwritten losses for some time by selling chips at uncompetitive prices to bleed Intel and guaranteed AMD's debt in the interim, until there was a semblance of competition with Intel. Or, in the crazy days of 2006, it could have become one of the turkeys in Old Macdonald's private equity farm, and found some foolish investors who believe such farms can produce golden eggs. Yet lenders rushed to finance AMD. Yes, from a societal viewpoint, Intel desperately requires competition. But that is for venture capitalists and regulators to work out- not for creditors. From the sheer dominance of Intel, an uninformed observer might think that Intel came into the business far before AMD did, and AMD was a brave new challenger trying to upset the dominant player. The truth however was that Intel and AMD came into existence a year apart in the late 1960s. After its products failed in the 1970s, AMD concentrated on producing Intel compatible microprocessors and flash memory. In 1982, AMD signed a contract with Intel per which AMD became a licensed producer of early processors for PCs. Intel cancelled the contract in 1986 and the two companies were lost in a protracted legal battle. However, AMD lost the plot the moment it started seeing itself as a follower of Intel and focused exclusively on reengineering each generation of microprocessor. Intel hastened the process of product improvement by the mid 1990s and AMD was finding it increasingly hard to reverse engineer. In the meanwhile, Intel became the de facto industry standard, AMD's efforts at coming up with microprocessors notwithstanding.

Probably from the mid 1980s to the mid 1990s, creditors might have thought that the cash flows from reverse engineering Intel's products would provide adequate cash for debt

servicing. Around 1996, the credit story at AMD ended. After that it was a directionless company, lurching into businesses that should have been funded by venture capital. AMD's debt amounted to less than half a billion in 1996. At the end of 2008, the company's debt amounted to \$ 5.1 billion- so AMD was having a free ride trying venturesome stuff at the cost of creditors. There just ceased to be a credit story- the four top customers amounted to 40% of net revenue in 2008. At the end of 2008, the company executed its own version of "asset light" strategy by offloading its fabs into a separate company called Global Foundries. The company had no choice but to do this- its leveraged balance sheet could not support further debt and there was no equity available for the continued capital expenditure.

Intel meanwhile went from strength to strength on the back of its intense paranoia of competitors- a creditor's ideal borrower. The company has practically no debt on its balance sheet. It can offer discounts to AMD's customers whenever regulators are not fully alert. So, AMD was a small boat in rough seas, with absolutely no control over its destiny. For the 5 year period from 2003 to 2008, the company had a negative return on capital employed, and from 2006, the company required more debt to make its interest payments. Certainly not a company suitable for debt financing- but many lenders obviously beg to disagree.

Fabless Chip Makers- Unless there is continuous Licensing Revenue, they can get into Trouble

Historically, semiconductor companies designed the chips, built the specialized tools required to manufacture them and finally manufactured the chips. Increasingly, the differing economics of the design and the manufacturing bits of the industry is causing some in the industry to focus only on the design aspect. That is, they have evolved into so called fabless companies. These companies live or die on the strength of their intellectual property and the quanta of licensing income they generate. The problem, from the creditor standpoint, is that until they have a successful patent followed by a licensing agreement, one can't estimate the company's future profitability- and once they have the licensing agreements in place out of

which the licensees cannot get out of easily, and the licensees are credit worthy entities, the company does not require debt as the cash flows churned out are more than adequate for all purposes. The only reason a successful design company might require cash is if the shareholders want their payout from the license fee in advance and hence securitize their license fees, or if the company wants to do a foolish acquisition. There might be some role for creditors if license fees are securitized. Else, creditors have no role in the fables game. Qualcomm is the best example of this business model. Founded in 1985, the company holds several patents in the area of CDMA technology for mobile telephony. The company gets more than 35% of its revenues from licensing and royalty fees. Even the equipment sales are linked to its CDMA technology. The company has no debt. The only issue of concern to potential creditors is that the two largest customers accounted for 30% of consolidated revenue.

GM's Operating Leverage during the Great Depression

GM had a sordid end in the bankruptcy court in 2009, thanks to a series of missteps by the management of the company over the last three decades. Yet, this was a company that had survived the Great Depression. Despite the considerable operating leverage in the industry on account of the capital expenditure required, the company made profits during every year of the Great Depression, even when volume of sales collapsed. In 1929, General Motors had a net income of \$248.3 million on net sales of almost \$1.5 billion. This income was secured through sale of almost 1.9 million units of vehicles in the US and Canada. In 1932, the company's sales volume plunged 72% compared to its 1929 sales. General Motors still managed to eke out a profit that year (albeit a negligible one) on net sales of \$808 million. What a fall it has been- from profit at any volume of sales in 1932 to losses irrespective of high volume of sales seven decades later. The bankruptcy court has reduced the company's operating leverage. Prior to bankruptcy, the company needed to sell at least 16 million

vehicles to breakeven. Thanks to wiping out some fixed costs in bankruptcy, the breakeven number of vehicles has sharply fallen to 10 million - thus drastically improving the company's future prospects if it manages to produce quality vehicles.

The Price Volume Dynamics and Operating Leverage in Process Industries

The chemical process industry is characterized by a two tier structure. At one level, there are companies which make basic chemicals without the protection of patents or know how. Such products are commodity like and the only way to earn a decent return on capital employed, over a cycle, is to be based out of a country with poor environmental regulations, reducing costs of environmental compliance. Also, big accidents happen from time to time in the industry. The costs associated with this are part and parcel of being a participant in the industry. These are much lower in countries with lax environmental laws. Hence, considering the economics of this segment of the industry, it is likely to move to developing countries.

The second tier of the chemical industry is knowledge based and involves the creation of specialty chemicals. These products enjoy higher margins and are less price sensitive. Such firms need to spend tidy sums on R&D to continue to produce superior materials.

Obviously, all firms aspire to belong to the second segment- but few are likely to succeed.

For instance, Riyadh headquartered Saudi Basic Industries Corporation (SABIC) aspires to be at the frontiers of specialty chemicals. One is justified in entertaining grave doubts on the likely fructification of such ambitions- research and development is likely to germinate flowers only when it originates in domains where the mind is without fear and the head held high and where societal mores have at least a veneer of scientific temper. True, the company has its research and development centers across the globe- but the strengths and weaknesses of the headquarters are likely to permeate through the organization. SABIC, to optimize its RoCE, should focus on basic and intermediate chemicals and let specialty chemicals be

developed elsewhere. Alternately, it could follow its own model of buying out chemical businesses from others as it bought out the plastics business of General Electric, provided it does not overpay for the acquisitions and does not take on too many contingent liabilities. Paradoxically, in this case the RoCE might be more stable than organic growth as the company does not have to take on development risk involved in research and development projects.

Whether it is in the basic chemicals or the specialty chemicals segment, the price volume relationship has a critical impact on ROCE. How does one operate one's plants when demand falls? Since most producers are price takers, the only way the high operating leverage of the business can be surmounted is through tinkering with volumes produced at various plants. The operator of 5 plants can operate at 60% capacity by shutting down two plants. The operator of a single plant has to operate his single plant at 60% capacity. The former operator usually ends up with lower costs. Hence, the bigger players tend to have an advantage over smaller players in cost dynamics.

The impact of operating leverage can be highlighted from the financials of one of the industry's leader Dow Chemicals. The company, incorporated in 1947, makes higher margin specialty chemicals and advanced materials. It also makes basic plastics and chemicals, businesses which are more cyclical in nature. In 2008, during the first half of the year, margins were clipped on account of high energy and feedstock prices. In the second half, the cost pressures abated but the demand fall affected the top line and the bottom line. The gross margin in 2006 was \$7.6 billion, but it dropped to \$5.5 billion in 2008. This caused the interest coverage of EBIT to plunge from 9 times in 2006 to 3 times in 2008- such is the debilitating impact of operating leverage. If the economies do not recover in 2010, its acquisition of chemical major Rohm and Haas will make matters worse, particularly since Rohm and Haas is a big player in the cyclical electronics market.

The impact of operating leverage gets felt through the fall in value of assets. Akzo Nobel, the world's largest paints and coatings company took over UK's Imperial Chemical Industries (ICI) in early 2008. The sensitivity between price and volume of sales and profitability caused the company to take a €1.275 billion impairment loss at the end of that year (its purchase price of ICI was £ 8 billion). On account of the impairment, the company made an operating loss that year. More worrying for the creditors is the company's dividend policy- it plans to dish out annually at least 45% of its net income before incidentals and fair value adjustments of the ICI acquisition. In short, the risks from the overpaid ICI acquisition had been passed on to the creditors.

Another driver of credit quality is the extent to which a company can pass increased costs of raw materials to its suppliers. Between 2007 and 2008, German chemical giant BASF's sales went up by 7.5%. However, due to rapid rise in costs during the first half of 2008, the company's EBIT actually fell by almost 12%. The higher the percentage of specialty chemicals in the product mix of a company, the greater the extent to which cost increases can be passed on to the end user.

Despite Commodity nature of Business, Potash of Saskatchewan has a Credit Story

The world's largest fertilizer company, Potash of Saskatchewan (Potash Inc, hereafter) of Canada, was founded in 1975 by the province of Saskatchewan to take advantage of the potash mines in the province. The company was privatized in 1989 and by 1993, the government of Saskatchewan was completely out of the company. 80% of the world's potash resources are concentrated in three countries- Canada, Russia and Belarus. There are three different types of fertilizers- potash, phosphatic and nitrogenous which bring different nutrients to the soil. Potash Inc operates in all three fertilizer segments, though it enjoys the highest margins in the potash segment on account of the company's access to potash and on account of the barrier to entry in setting up a potash mine in terms of cost and time required.

Otherwise, the fertilizer industry is broadly a commodity business where the lowest cost producer wins out. The business volumes can go up and down depending on global climatic conditions (for instance, during a drought, demand for fertilizers goes down).

The increase in global population and decrease in arable land imply productivity of existing lands must be drastically improved to be able to feed human beings. Also, increasing global prosperity is driving up demand for meat, which in turn requires more grain as feed for animals. Though the demand for bio-diesel is likely to die a natural death, it too, from time to time can drive up demand for fuel producing crops and hence drive-up the demand for fertilizers. Genetically modified crops are the other productivity enhancing tool available to farmers.

Potash Inc has access to potash mines which are likely to last a long time. In some cases, the company has long term leases for mining potash. With these rights Potash Inc will be a low cost producer, which can handle industry ups and downs. And in the foreseeable future, there are likely to be more ups than downs. The only concern is that the company might leverage itself through frequent share buybacks. The company bought back more than 7% of its shares in 2008.

Linde: Adjustments needed in Company's RoCE Calculation post Acquisitions

Munich based Linde AG is a leading German industrial gas and engineering company. Post its acquisition of UK based gas producer BOC in 2006, the company became the largest producer of industrial gas. The company does have a penchant for acquisitions, having purchased industrial gas companies in many countries and this tendency must be kept in mind by any creditor. In 2009, the company bought Saudi Arabian Industrial Gas Company (SIGAS). Acquisitions had caused the company to carry € 6.9 billion of goodwill on its balance sheet. From a creditor viewpoint, the scale and valuation of acquisitions should not

make much difference to the RoCE and there should not be any redefinition of RoCE. Any acquisitions which involve definition changes by the company management to the RoCE calculation, on account of high price paid for an acquisition, should not be condoned by a creditor.

In its 2008 Annual Report, the company defined return and capital in the ROCE calculation as follows:

Return = EBIT + Amortization of fair value adjustments identified in the course of purchase

price allocation +/- non recurring items

Capital Employed= Equity + Debt + Liabilities from financial services + net pension obligations- cash and equivalents – receivables from financial services

We have issue with the inclusion of the two items other than EBIT in the return calculation. Firstly, non recurring items should not be included in the return calculation. If they recur in every earnings and business cycle, and say an earnings cycle lasts 4 years, one-fourth of the non recurring item can be included. If the non recurring item occurs due to asset sales, the adjustments should be made to the capital employed. Post a sale, lower amount of capital will be employed in business if the gains from the sale are used to pay dividends and retire debt so that the current capital structure is preserved. If the non recurring item is a loss on account of fiddling with derivatives in a mindless fashion, the creditor should include it in his calculation so that he knows the impact of management folly. Assessment must be made to determine if the management has learnt its lessons well or whether it would embark on fresh misadventures.

It is the item “Amortization of fair value adjustments identified in the course of purchase price allocation” that we really have a quarrel with. In its 2008 annual report, the Linde management gave the following winded explanation for the item-

“ When we acquired the BOC group we redefined ROCE (Our take- it is always suspicious when management redefines performance metrics) and applied the new definition to 2006 financial year. The revised definition takes account of the various effects of the acquisition on the RoCE performance indicator. On the other hand, earnings are adversely affected by the amortization of fair value adjustments identified in the course of the purchase price allocation. This reduces the return on capital, although the operating performance of the company has not changed as a result of the identification of fair value adjustments and their amortization ”

In simple English, what the management is saying is as follows- we overpaid for a large acquisition. This acquisition bloated our capital base. RoCE would have collapsed if we did not indulge in some redefinition pursuit.

Our other quarrel is with the definition of capital employed. We have no comments on the items connected with the finance business. We do have issues with subtracting cash from the denominator. A certain amount of cash is definitely needed in a business to budget for delays in conversion of current assets to cash and for delinquencies on receivables. Cash is also needed for handling potential business disruptions. How much cash is required varies from business to business. This required cash has to be deployed in lower yielding assets, which brings down RoCE, but it is as much a cost of doing business as having to pay the raw material supplier. As a corollary to this, we would be circumspect in calculating the net debt of a company by deducting cash from gross debt. The amount of cash in Linde’s balance sheet at the end of 2008 was € 1.022 billion, no trifling sum when one considered the fact that the shareholders’ equity was € 7.12 billion. How much of the cash is required for the

business and how much is extra, we are not qualified to comment. But a creditor about to take an exposure would do well to find out.

Linde's industrial gas business has some interesting characteristics. Some of the business is protected by long term contracts such as the contract the company has with Coca Cola to supply carbon dioxide to add fizz to the sugary dark brew. The supply of medical gases to health care companies is also fairly immune to economic slowdown. However businesses such as supply of gases to construction sites as well as the company's other business of building process plants for clients are more vulnerable to economic growth. So, Linde has a combination of cyclical and defensive businesses. In the cyclical business, optimizing price volume relationship is critical.

Linde's Paris headquartered competitor, Air Liquide, tries to optimize the price volume relationship within its contract structure with customers. The company has long term contracts wherein 60% to 70% of the contract price is fixed and thus protected from slowdowns and the remaining part exposed to business conditions. Air Liquide is supplier to really cyclical businesses such as specialty gases to manufacturers of semi conductor chips.

Retail Business- low Margin does not matter- RoCE does

In the retail business, everyone fancies himself to be the next Wal-Mart. But few retailers have it in them to be so. The credit analyst analyzing a retailer has to assess how many of Wal-Mart's numerous virtues the retailer in question has. Does it have the heft to negotiate with suppliers that Wal-Mart has? Does it have deep supply chains cutting across the world? Does it have a current ratio less than 1 to ensure short term debt finance is not required for meeting working capital requirements (Wal-Mart has had a current ratio around 0.9 every year during the previous five years). Does it have benign employment contracts with associates that Wal-Mart has and which drive costs down to the bone? But even Wal-Mart

has not succeeded everywhere in the world. In 2006, it got out of Germany after selling its 85 stores to top German retailer Metro AG. In the same year, the company got out of South Korea after taking a \$ 1 billion hit. Its business in Japan is struggling. The retail business is closely linked to the local cultural norms and one should be wary of retailers planning fast expansions in new territories (even within the same country but in a different region).

At the end of the day, it does not matter how razor thin a retailer's margins are as long as it has a huge volume of sales. The credit analyst needs to assess how vulnerable the volume of sales is to changing economic conditions. Falling volumes can tip a retailer to losses and the higher the fixed costs the more vulnerable the retailer is. All this is reflected in a retailer's return on capital employed over a business cycle.

A retailer offering essential goods at low prices is less vulnerable to deteriorating economic conditions. For instance, as Japanese households are experiencing financial stress, low cost casual clothing maker Uniqlo has demonstrated increased volume of sales. Uniqlo started in 1984 as Unique Clothing Warehouse. Even in brand conscious Japan, as times get tough, buying clothes without brands does not seem too unfashionable. The success of clothing retailer Muji, short for Mujirushi Ryohiu, which in Japanese means "no brand quality goods", is a pointer to things to come. In the US, as households retreat from consumption, one of the very few retailers of women's clothes that had higher sales in 2009 was Dress Barn Inc., - a company that specializes in providing reasonably priced clothes, particularly for outsized women.

The more profitable the retailer is, the less his suppliers would fear extending credit to him. When that happens, a retailer can work on a negative working capital cycle without the requirement of external capital for supporting working capital requirements. At the lower end of the retail chain, brand does not matter as much as the offer of low prices. And low price is the only driver that can really sustain volumes. Higher volumes mean faster inventory

turnover and higher return on capital employed. Long term capital is required only for purchasing property for opening stores. A retailer who leases all his property does not need much external capital if he is operating on a negative working capital cycle. Property assets are important for a retailer from the credit standpoint as we discuss later.

RFID technology is beginning to revolutionize the retail industry through drastic improvement in the supply chain. Considerable productivity improvement can be had by restocking inventory efficiently and by removing items past their due date from the shelves. The retail business being a very competitive one, it is unlikely that the gains from the productivity increase will flow to creditors and shareholders but it will all be captured by consumers. But retailers cannot avoid the capital investments required for RFID- else competitors will make those investments, pass on the achieved gains to the consumer and go for higher market share and improvement in return on capital employed.

Retailers in high technology areas can secure an added source of revenue- providing customer services to clients for installing equipment and maintaining the equipment. For example, US electronic retailer Best Buy gets around 5% of its revenues from services. Done properly, besides providing an additional revenue stream, it also can increase customer satisfaction and create a unique relationship with the customer which facilitates future sales.

Leases and Capital employed in the Retail Industry

Leasing of store space can form an important part of a retailer's business model. Leasing of stores has advantages and disadvantages over outright ownership. One does not have to take on debt to buy new stores. And if the leases are operating leases, one can cancel those leases without too much fuss. So, how does one estimate the capital employed in a retail company with a mixture of operating leases and finance leases? Everything else in the capital employed calculation remains same. The debt that needs to be considered is the sum of debt

outstanding and the net present value of cash outgo on operating leases and finance leases carried at book value. In the case of both finance and operating leases, capital component of lease payment is added to depreciation expenses. All other expenses connected with the lease except the interest component must be added to operating expense. The disadvantage of operating leases is once their tenure is complete, lease rentals would have to be reset, perhaps at a higher rate.

Leases can really dominate a retailer's capital employed. For instance, in 2006, of the €9.5 billion of debt capital employed by German retailer Metro AG in the business, operating leases at € 4.3 billion were higher than the net debt of €3.1 billion. Finance leases accounted for another €2.1 billion.

Retail as a Real Estate play: How is the Creditor Protected?

Real estate assets can be a tremendous source of comfort to a retailer's creditors. A retailer owning premises at important locations not only can be a source of good business, the real estate can promise good recovery in case the loan turns bad. Obviously retailers leasing their premises might afford flexibility in business operations but they do not help in recoveries post a default. In other words, retailers with leases and not owned property need to have higher amount of equity on their balance sheets to act as a cushion for creditors.

German retailer Arcandor, the owner of Germany's department stores Karstadt, exemplified how a retailer can get into trouble with real estate based financial engineering. The Essen based retailer changed its name from Karstadt Quelle to Arcandor in 2007. In 2006, the company raised € 4.5 billion by spinning off the company's property portfolio. It was stuck with department stores with high rents which put at peril the company's operating margins. The company continued to own 49% of the property portfolio. The retailer used the money to pay off its consolidated debt of € 3 billion (including the debt of its 50% owned subsidiary,

tourism major Thomas Cook). The high lease rentals were unsustainable for a company operating on razor thin margins- it filed for bankruptcy in 2009. The company obviously did not learn from its near death experience in 2004 when it resorted to this bit of financial engineering.

The importance of the property portfolio to a creditor should not be underestimated. Almost all the value supporting creditors at UK's third biggest retailer Sainsbury comes from its £7.5 billion property portfolio. The retailer had been reduced to a marginal position by UK's number one retailer Tesco. Tesco itself did a sale and lease back involving £ 458 million of the company's assets. By early 2009, French retailer Carrefour had a property portfolio valued at around € 20 billion.

UK retailer Marks & Spencer (M&S) resorted to a truly bizarre financial engineering exercise with its property assets in 2007, which reduced potential creditor recovery in the event of default. The 125 year old retailer, a decade earlier, had sported a AAA credit rating. By 2009, the rating had come down to BBB. But the company's getting around fully funding its pension obligations was a clear pointer to the fact that the management was now focused on financial engineering and less dedicated to operational excellence. Pension obligations must be fully funded except for short periods when there are severe market dislocations. Only then can a credit analyst evaluate the yearly cost of doing business and correctly estimate the return on capital employed.

At the end of September 2006, M&S had a deficit of £1.03 billion on its UK defined benefit pension scheme. In January 2007, M&S agreed to contribute £500 million of value into the pension scheme through an interest in a property backed partnership. The remainder of the deficit was expected to be met by the fervent hope that investment returns will suddenly zoom up. To meet the £500 million contribution, M&S established a partnership with the pension scheme which would hold M&S properties with a then market value of £1.1 billion.

Those properties were leased back to M&S and a fixed annual distribution of around £50 million was to be paid to the pension scheme out of the partnership profits for a 15 year period. This translated to an effective financing rate of 5.4% for M&S. The pension deficit was to be reduced by £500 million. M&S retained control over the properties and had the right to substitute alternative properties. Effectively, this moved potential recoveries from the creditors to the pension fund investors.

Similar real estate play was witnessed at US discount retailer Kmart which went bust in 2002. A distressed debt investor bought the company's distressed debt and used them to take over the company. The investor sold off much of the firm's valuable property assets and merged the company with Sears, a retailer he already owned. In 2004, 65 Kmart stores and acreage were sold to Home Depot and Sears for \$946 million. In 2007, Sears sold its Canadian headquarters in Toronto for \$81 million and leased back the space.

High US Household Debt- It makes sense for Retailers to liquidate than file for Chapter 11

After the debt fuelled consumption boom in the US ended in 2007, many retailers filed for bankruptcy. The names included electronic retailer Circuit City, retailer of home textiles line Linen 'n Things, jewelry retailer Whitehall Jewelers, high end electronics retailer Sharper Image and department store Mervyn's. Household debt to GDP ratio hit unviable levels in 2007. Consumption had only one way to go in the next few years as households restructured their balance sheets by focusing on savings- downwards. So, businesses which were barely viable when credit was abundant had no chance of survival when the tide had turned. Hence, after filling for bankruptcy, most of these retailers went straight to liquidation. There was no chance, merely by restructuring of debt to make a company viable when the credit story collapsed with falling footfalls. In a razor thin margin environment, a small fall in volume is all that is required for a company to move from viability to non viability. Wizards of the private equity world thought they could do magic on unviable retailers and morph hardened

toads into soft princesses. The acquisition in 2006 of Linen 'n Things for \$1.3 billion was a classic case of such a failed pursuit. Plying debt onto a retail firm, other than for gradual capital expenditure, never makes sense, because retailers are players in a highly cyclical business and require financial flexibility to handle economic slowdowns.

Also, as households de-leverage, they might be inclined to consume cheaper consumer goods such as private label goods of retailers like American retailers Wal-Mart and Kroger. This will impact the future financial strength of makers of premium consumer products such as P&G, Kimberley-Clark and Unilever. With even moderately up market retailers such as Target adjusting their business models to be relevant to customers who are cutting their household budgets, the threats to the makers of consumer goods is very real. Also, as households de-leverage, corporate consumption also falls, impacting the financials of office-supply retailers such as Staples and Office Depot. The only retailers whose credit story would be intact in such a de-leveraging environment are retailers of cheap goods such as Dollar General.

Same Store Sales – How useful is it to estimate RoCE?

A popular metric used to evaluate performance in the retail industry is same store sales. It is a measure of performance of existing stores for a particular period, say a particular quarter compared to sales in the same quarter of the previous year. This metric is considered only for stores that have been open for a certain amount of time, say 12 months so as to ignore stores which have not stabilized. Same store sales might have its uses to a number of stakeholders, but they are of no use to the creditor. It matters to the creditor how those sales were obtained- was it by cutting already fragile margins to even more pitiable levels? Or was it obtained through innovative schemes to promote rapid inventory turnover? Any sales discounts, unless accompanied by jump in volumes of goods sold, to compensate for the lost

margin is not a positive for the credit quality of a retailer - no matter what the same store sales might be.

To a creditor, the return on capital metric reveals all that he needs to know. The returns incorporate a number of things such as- efficiency of working capital (a low current ratio would lower the amount of capital that has to be employed), how much capital is employed in the stores (stores in city centers would obviously guzzle more capital than those at the edge of a city), operating margins, velocity of product movement from the shelves and opening of new stores in a slow and prudent manner (if stores are opened too rapidly, the RoCE would fall sharply). Writedown of inventory as well as write-off of receivables are also captured through the metric.

The Winn-Dixie Bankruptcy and Lessons in sharply downward Spiral in the Retail Business

Return on capital employed is very fragile in the retail industry and it is essential that a retailer's vendors have confidence in the company's credit strength. The day they have doubts on the creditworthiness of a retailer, they would start reducing the amount of credit provided. The interest free credit provided by the vendor has to be replaced by costly short term debt. The debt would be costly because unlike vendors who exercise forbearance in their dealings with a retailer under stress, as they need to push their own sales, creditors do not have any other agenda than to have their debt serviced on time. So, the moment a retailer starts experiencing financial strain, he rapidly gets into a downward spiral from which it is practically impossible to get out of. If the trouble at the retailer is on account of non performance of some stores, creditors need to see rapid shut down of those stores before the cancer of those stores starts wreaking havoc on the company's balance sheet and spreading fear in the minds of the vendors. Timely store closures ensure that those under performing stores stop guzzling cash on account of lease payments and other fixed commitments.

Fixed costs for operating a store are high. These include store lease payments and employee wages. A certain level of sales is required to ensure that fixed costs are covered. When sales fall below that minimum threshold, the downward spiral starts, which if not nipped in the bud, can drive a retailer rapidly into bankruptcy via the vendors cutting off credit lines. The bankruptcy of Jacksonville, Florida based retailer Winn Dixie in 2005 was an objective lesson in this. The retailer traces its origins to 1925. Winn-Dixie, at the time of bankruptcy, was operating stores in several states of the south-eastern part of the US outside its core Florida market. The company's woes started when it started losing market share to Wal-Mart. While Wal-Mart was sourcing more and more goods from China so as to deliver low cost products to customers, Win Dixie started manufacturing its own products. Setting up such facilities consumed capital. As sales dropped, the company got into a death spiral. In the fourth quarter of 2003, its losses were around \$80 million. In the fourth quarter of the following year, the losses jumped to \$400 million. Quarterly sales were 5% below the levels of the previous year. Once losses started mounting, vendors reduced their credit, forcing the company into bankruptcy. Its largest vendor Kraft Foods Inc was owed \$15 million at the time of bankruptcy. The company exited from bankruptcy in November 2006, with a \$800 million debtor-in possession financing from Wachovia Bank.

When should a creditor have spotted trouble? Creditors had at least 5 years of warning when the return on capital employed drastically fell in response to lower sales (on account of Wal-Mart gaining market share with its low prices) as well as inefficient deployment of capital (for setting up own manufacturing facilities).

Did Mexico's Soriana do the right thing by acquiring Gigante?

Soriana is Mexico's second biggest retailer after Walmex, Wal-Mart's Mexican arm. The Monterrey based retailer has had fairly steady albeit unspectacular return on capital employed. Until the end of 2007, the company did not have any long term debt. The

company runs stores under four formats- Soriana, Soriana Mercado (super low cost), Soriana Super and City Club. Towards the end of 2007, close to the peak of stock market valuation, the company acquired 197 self service stores of Grupo Gigante for 9.8 billion pesos.

For most companies, particularly in the retail space, an overpriced acquisition, just prior to a steep fall in demand would have been the end. But not for Soriana. Firstly, the company, before its acquisition, was underleveraged. Post the acquisition, funded mostly by debt which caused it to have 8.7 billion pesos of long term debt, the company is probably slightly overleveraged, considering it has also 5.3 billion pesos of short term bank debt. At the end of 2008, the company had 29 billion pesos of shareholder equity.

The key to Soriana's success has been the company's dexterity in quickly adjusting costs to revenues. The moment a retailer is slow in doing that, losses mount requiring increased debt funding and the death spiral starts. As long as a retailer is not in the death spiral, it benefits from the negative working capital requirements of the industry. Despite the global recession affecting Mexico in a big way in 2009, Soriana reported higher earnings in 2009 than in 2008. In the second quarter of 2009, the retailer had 883 million pesos of profits, despite a 3.5% drop in sales. In the third quarter, the profits almost doubled compared to the same period in the previous year despite sales slumping by 8%.

So, despite possibly overpaying for the Gigante acquisition, the company is poised to do well. And the acquisition will provide the company the heft it requires for its negotiations with suppliers. That would help it compete better with Wal-Mart. Before the acquisition of Gigante, the company, in 2000, had acquired three hypermarkets from French retailer Carrefour. The French retailer got out of Mexico in 2005 after a decade long presence during which it did not have any appreciable success.

Tesco provides Vendor Financing with Supplier Funds

We normally disapprove of vendor financing in any form, if such a financing can be obtained from banks or other financing agencies. UK's number one retailer Tesco started providing financing to its customers in the financial year ended March 31st 2009. Since the items that Tesco sells are of a fairly basic nature, which are not of very high value, we wonder about the credit quality of the borrowers who need external financing for low to medium value goods. In the first year of such loans to customers, the company provided £ 3.4billion of financing, of which £ 1.9 billion was due within a year. It is too early to comment on the credit quality of the loans as the portfolio is not fully seasoned. Despite our skepticism of such financings, the Tesco financing model has some bright spots. At the end of the financial year ending March 2009, the company had payables of £8.5 billion, while its receivables and inventory were respectively £ 1.8 billion and £2.7 billion. That leaves a healthy gap of £4 billion. The company has in effect used supplier funds for providing the financing. If that translates into increased sales turnover (and correspondingly high return on capital employed), it is super news for the creditors and shareholders. But that assumes that the write-offs on bad loans would not be large enough to offset the higher profits from the incremental sales. And that is a big IF.

Return on Capital in the Entertainment and Discretionary Businesses

RoCE in Theme Parks, Multiplexes, Travel Industry and Casinos

Good casinos generate superb returns whenever the economy performs well. This tempts the companies to undertake investments which guzzle a huge amount of capital. It removes management focus from projects currently generating revenue to executing new projects. Of course, new projects, besides increasing execution risk also bring in additional capacity. And because competitors also bring in new capacity at the same time, many companies get into financial trouble the moment a downturn arrives. Trump Resorts of Donald Trump filed for

bankruptcy thrice after overextending itself in its capital expenditure plans. Casinos might be one of the few industries where creditors might be better off if the companies make big dividend payments to shareholders during the good times rather than lever up the retained earnings for capital expenditure plans. So, though the underlying business risk of a well functioning casino might be acceptable from return on capital employed perspective, management's tendency to overreach can increase the financial risk of the company and get it into trouble. To make matters worse, private equity shops have been involved in levering companies like US casino companies Harrah's Entertainment and MGM Mirage.

CMBS: Separating Business Risk from Financial Risk in a Covenant-lite Lending Environment

One of the most profound statements in Warren Buffett's annual reports to shareholders (there are just too many to count) is the following when talking about the nature of investments in various businesses: *Our lack of strong convictions about these businesses, however, means that we must structure our investments in them differently from what we do when we invest in a business appearing to have splendid economic characteristics.* He was referring to whether he would invest in common stock, preferred share with conversion features or some other structure in different industries. An extension of this argument is the way you structure an investment in a company. You might believe in the business prospects of the company but are worried that management would mess up the whole show (particularly if the new management is a leveraged player such as a private equity shop). In such cases, one has to structure one's credit investments so as to separate the business risk from the financial risk of the company.

One way in which lenders to casinos can protect themselves from management overreach and from management excessively leveraging up the company is having strong covenants. That would prevent the assumption of excessive financial risk. A way to separate business risk from financial risk of a casino is to participate as an investor in commercial mortgage backed

securities (CMBS) linked to the casino. The casino company, if not prevented by covenants in other loans, can sell and leaseback viable casino properties to a special purpose vehicle, which issues CMBS. The company can have a residual interest in the SPV after paying off the CMBS. The advantage to the lender in using this structure is that the SPV is remote from the bankruptcy of the casino company. As long as the business is doing well, there is no risk to the lender. If the business does well and the company does not take on too much financial risk, the company obviously should have no problem paying its lease rentals. On the other hand, if the business does well but the company gets into financial trouble through excessive leverage, the CMBS investors are protected. As the casino company goes through a bankruptcy process, the direct lenders to the casino company have to take haircuts. The CMBS would not be a part of such bankruptcy proceedings and should continue to get its lease rental, even if there is a minor disruption. Of course, the properties backing the CMBS must be ones which generate returns- not construction projects or undeveloped land.

Harrah's Entertainment is one of the largest casino operators in the world, operating through brand names such as Harrah's, Caesar's and Horseshoe. Harrah's can trace its origin to 1937. In early 2008, the company was acquired by some private equity shops and it involved Harrah's assuming \$12.4 billion of debt, which doubled the company's outstanding debt. Harrah's had a CCC+ credit rating from S&P in the middle of 2009. The company had a \$23 billion dollar debt at the end of 2008 and total assets of \$30 billion. If one expected writedown of the almost \$10 billion of goodwill and intangible assets that the company was carrying on its books at the end of 2008, the creditors, particularly the unsecured ones can't expect much in the event of bankruptcy. The only creditors who are not affected much are CMBS investors who hold \$ 6.5 billion of the company's debt.

Bad Debts from Financing extended to Gamblers: Things can only get worse

The casino industry has been offering credit to its customers to encourage them to participate in table games. This is referred to as marker play. A sizeable chunk of the receivables that emanate from this can end up as bad debt. At casino and resort operator MGM Mirage, in 2008, 38% of the casino accounts receivables ended up as doubtful debt. The ratio was pretty high in 2006 and 2007 also- 35% and 29% respectively. Harrah's carried \$ 201 million in its bad debt reserve at the end of 2008. Because of the capital expenditure involved in creating or buying a casino, it does make sense to get the usage of the facilities to be as high as possible. Also, since the business is seasonal, during off-season periods it might pay off to increase the capacity utilization through enticements. The key is to evaluate whether the increased revenue from increased customer activity offsets the increased bad debt and whether such financing extended improves a casino's RoCE.

The credit story of the Las Vegas gambling industry is going to change drastically. Newer centers such as Macau, the only part of Chinese territory where gambling is legal, might reduce the flow of overseas gamblers. And as household debt in the US hit unmanageable levels, the debt loaded casinos of Las Vegas are going to have a sordid time. And bad debts from marker play will go up.

Why did Theme Park Player Six Flags go down under?

The biggest worry for a creditor in the theme park space is the risk of a company overpaying for acquisitions. It gets worse when an acquisition gets funded with debt. The reason for the acquisition binge is not clear- there does not seem to be scale advantages unless the company has some very strong character franchises such as what Walt Disney has.

Walt Disney's creative properties can be monetized through a number of avenues- media networks, parks and resorts and studio entertainment through creation of new characters,

merchandising products linked to the character and even PC and mobile phone games linked to the character. Even then, Disney's return on shareholder funds was only 14% in 2008 despite employing a capital structure in which the debt was 46% of equity. It is very hard for a creditor to analyze Walt Disney because of its numerous businesses, some of which are generating healthy returns on capital employed and others are not. It is also not for a creditor to bet that Disney's creative machine, Pixar, the master of animated movies would continue to produce blockbusters. Creditors need to see visibility of earnings- so creditors can actually fund the \$4 billion acquisition of Marvel Entertainment in 2009, provided the earnings streams from Marvel are properly ring fenced and Disney brings in an adequate amount of equity to the transaction to cover the creditors against shortfall in revenues as well as the risk of Disney overpaying for the acquisition. Marvel brought in characters like Ironman and Spiderman to Disney's stable. It is for this reason that one cannot take a long term credit view on hugely successful companies such as leading games console and video games designer Nintendo. Nintendo does not have any debt on its balance sheet. But the moment its creative juices sag, the business would sharply swing downward. At that time, there would be no credit story. So, in the creative business, in good times, the companies do not need credit. And in bad times there is no credit story. And because the story is linked to the creative juices of the company, one can't forecast when the good times would turn bad.

Lending to such businesses can be only by securitizing the revenue producing capability of existing assets. For example one can lend against assets such as the illustrious movie library of MGM Studio. The value of those assets provides an estimate of LGD if a default occurs and an analyst needs to estimate it accurately. Those who did not do their homework got severely punished as sellers of CDS protection on MGM Studio found to their cost. The company defaulted on a debt payment due on the 30th of September 2009. The CDS protection sellers faced losses of 41.5% on the face value of the protection sold.

Back to Six Flags, one of the largest theme park operators in the world. The theme park operator was founded in 1961. From the early 1990s to the late 1990s, the ownership of the company changed a few times. During the decade it kept on acquiring more and more theme park properties, often, at much higher price than intrinsic value. The balance sheet weakened as the return on capital employed from the acquisitions was really poor. The operator did not wait to consolidate to see if the returns were adequate for the capital it was expending to buy the assets. Because of this, the company went deeper and deeper into debt. It made losses in 2000 and 2001. A big management change took place in 2005, but once a company has overpaid for acquisitions and has used a heavy debt load, it is very difficult to recover. It had to cut on essential up gradation of its properties which only served to put off potential customers.

At the very least, creditors need to specify that acquisitions should not be done at more adverse debt equity ratios than what is currently prevalent in the capital structure. The moment a creditor sees a low RoCE acquisition, he should get out of the company as soon as feasible. Usually, there is time for the creditor to get out unless the firm was too leveraged even before the acquisition. The gradual deterioration of finances happens as RoCE does not keep pace with the cost of servicing the debt. Only when the company takes a bath through the bankruptcy process and writes down the carrying value of the debt does the company stand a fighting chance.

Another red flag for creditors occurred in the late 1990s when the company took the industry leader head on. It is possible to have a head on collision with the industry leader only when one has a superior product. Though Six Flags claimed its competitive strength sprang from the fact that 84% of Americans were living within a distance of less than 300 miles of a Six Flags theme park, one has to keep in mind that 300 miles, even in a country as well connected by roads as the US, is not a distance one would traverse on a whim. Additionally, visits to

theme parks are concentrated around school holidays. So, when a visit to the theme park was not a regular occurrence, users might think it more sensible to go to the park that offered a superior experience. Disney won that game hands down and by the end of the 1990s, was drawing more than double the number of visitors as Six Flags, despite the more convenient locations of Six Flags' theme parks.

With the burden of debt, Six Flags went into a slow spiral of death. Operational losses and debt kept mounting. Shareholders equity got wiped out in 2006. Finally, the company gave up its ghost in 2009.

What should creditors who were trapped in the company have done? Once a company's debt is a bigger and bigger load, it is very difficult for the company to recover. Management attention is focused on creditors and not on meeting customer requirements. This helps competitors to storm ahead. So, when creditors notice that the company is groaning under a load of debt, they should be proactive so that their recoveries are better. They should quickly cut funding to the company and do their level best to prevent other creditors from coming in. If the CDS on the company is available, they should use it to ensure that the company files for bankruptcy as soon as possible and shareholders are wiped out. Prolonging the agony by keeping a zombie company alive hurts everyone as the inevitable inevitably happens, but then credit recoveries would be lower with the passage of time.

Correct Estimate of Depreciation crucial for estimating the RoCE of Carnival Corporation

Carnival Corporation is one of the leading luxury cruise operators in the world. The company operates its cruises under numerous brands so that it caters to people of different ages and backgrounds. Some of the brands have been around for more than a century. The company operates as a dual listed company, with Carnival Corporation incorporated in Panama, while its British entity, Carnival plc is incorporated in England and Wales. The

businesses of the two companies are combined through a number of contracts. The company proclaims that its mission is to deliver exceptional vacation experiences.

Most of the accounting for the business is relatively straight forward. Customers are allowed to book for cruises in advance. If they pay a premium while booking a ticket, they are entitled to cancel their ticket and allowed to get back the original fare minus some cancellation fee. The customer deposits are more than adequate to finance current assets and serve to decrease the amount of capital that needs to be deployed in the business. The business has certain inherent positive dynamics. A chunk of the revenue comes from retired people going on cruises and their cruise plans are not impacted by economic downturns. The company made a decent profit in 2008 despite higher fuel prices.

A cruise company that is doing moderately well and is moderately leveraged should not have cash flow problems for servicing debt. This is on account of customer advances and also on account of the fact, unless it is in the expansion mode, it does not have to undertake too much capital expenditure except for the upkeep of the cruise liners. But an investor in the long term debt of a cruise company, or the provider of vendor financing (say an export credit agency) to a cruise company for buying a ship needs to know the true return on the capital employed of the company. And that crucially depends on the average useful life of a ship assumed. At the end of 2008, 76% of Carnival's assets were its ships. From that, one calculates the depreciation of the ships, which that year amounted to 10% of its operating expenses. Ship improvement costs which need to be done on a continuous basis might be better expensed in the income statement rather than be capitalized in the balance sheet.

Uncertainty in the depreciation calculation comes from the residual value (considered by the company to be 15% of the cost of a ship) assumed at the end of a ship's life. Because cruise operators make a chunk of their revenue on the basis of their strong brands, it does not make sense to carry the ship in the balance sheet at fair value- that is the value at which the

company can sell it to another party. Because of the brand strength involved, the value of the ships, as they sit on the company's balance sheet, would be higher than the price at which they can be offloaded. One represents the capitalization of future revenues, the other merely selling of a piece of equipment.

A creditor planning to lend to a shipping company for say 5 years need not be too worried whether the ship depreciation calculation has been correctly done or not, unless the average age of the fleet is high. He should however worry if the cruise company does acquisitions at substantially higher value than book value, creating goodwill which might be impaired shortly after the purchase. Carnival did buy a leading luxury cruise operator- Princess in 2003. At the end of 2008, the goodwill carried was around 10% of the total assets- so even if they got impaired the effect would not be much. Because the acquisition was done in more sober times and not in the middle of a debt financed frenzy, the acquisition price was sensible- in fact, the acquisition gave Carnival some pricing power. The other risk is that the company, in pursuit of short term profits, might reduce the intensity of the customer experience through cutting corners and costs- thus reducing the premium that customers would be willing to pay in future.

RoCE in the Sports and Sports related Companies

For a creditor, it always is a sound strategy to finance a seller of shoes and shovels to a prospector for gold than to finance the prospector himself. A creditor, by that reasoning, should be more comfortable lending to makers of sports goods such as Nike and the Adidas Group (the owner of the Adidas and Reebok brands). In the next few years, revenues might fall, inventory write downs increase and receivables get uncollectible as households in the rich world adjust their debt to more manageable levels. However, these companies are entering the downturn with considerable financial strength which should enable them to tide

over the tough times. That comfort is not available to creditors of companies such as sports clubs.

The Manchester United Acquisition: Business Risk good, Financial Risk not so

Manchester United is one of the top soccer clubs of the English Premier League. A predecessor of the club was founded in 1878. The club has a strong fan following in the country and was listed in the stock exchange in 1990. The club generates revenues from ticket sales, merchandise sale, TV rights and apparel and other merchandising. Manchester United even had a tie up with telecom company Vodafone as the T-shirt sponsor.

Of the revenue streams, ticket sales are fairly reliable as the club has a fairly loyal fan following. Revenues from sponsors are a bit variable. The strength of a sponsorship contract depends on the creditworthiness of the sponsoring entity. For instance, bust insurance company AIG was a leading Manchester United sponsor. But if the team continues to perform well, one sponsor can always be replaced by another, though it is moot whether the sponsorship amount will be higher or lower than the previous sponsorship contract. It depends on the state of the economy at that point in time. Merchandise sale to a considerable extent also depends on how well the team performs, but one can always estimate a minimum amount of such sales even in bad year. Likewise, income from TV rights are a function of team performance, but again, a certain minimum amount can be estimated based on the TV rights of teams which have not performed too well.

The costs of operations can be estimated fairly accurately upfront because most costs are contractual in nature and have a long term flavor. These costs include contracts with players, managers, coaches etc. In fact, there are few industries where costs can be as accurately estimated upfront as in the case of the costs of a soccer club. At certain times, the club can sell players to other clubs- this is a key cushion for creditors if the club has players desired by

other clubs. Creditors can secure revenues by forcing such transfers if the company is not generating adequate revenue from traditional sources. But that will impact future team performance and future revenues.

Since 2003, US businessman and sports club owner Malcolm Glazer started building stakes in Manchester United. Finally, in 2008, he completely took over the club. The most interesting part was the financing of the deal. The market cap of the club at the time of acquisition was £ 800 million. The deal was partly funded by 3 hedge funds at a subordinate level to the senior lenders. The hedge fund loans were for 11 years and charged a rate of 14.25%. The loans were structured as payment in kind (PIK) notes. As an aside on PIK, Warren Buffett once said “it is impossible to default on a promise to pay nothing”. The hedge fund loans came with strict EBITDA loan covenants - if the covenants were breached, the hedge funds had the right to appoint 25% of the board.

By the middle of 2009, Manchester United’s debt had soared to over £ 700 million due to accumulation of interest charges. In 2008, on a total revenue of £ 256 million, the company had an operating profit of £ 80.4 million. £ 511 million of the debt was secured against the club, while the rest of the debt was secured by Glazer’s holding in the club. Manchester United was a classic case of a company in which debt and revenue can soar at the same time. Despite the business model being sound, the capital structure of the company was driving it aground.

The Bankruptcy of NHL Team Phoenix Coyotes

Purchase of a sports team is the ultimate act of vanity for many businessmen. The credit strength of those teams does not depend only on the cash generation ability of the club but also draws comfort from the financial strength of the owner. To an owner, it would be humiliating if the club he owns were to default on its debt- so he would not permit it unless

he himself was in financial difficulty on account of lackluster performance of his core businesses. Nor is he likely to sell the club (most probably to another businessman) unless he is experiencing financial stress.

The Phoenix Coyotes are a professional ice hockey team based in Arizona. They were founded in Winnipeg in 1972 and entered the National Hockey League (NHL) in 1979. The club encountered financial stress in the early 1990s as player salaries were spinning out of control. In 1996, the club was bought by a Phoenix based businessmen who moved the club to Phoenix. However, nothing seemed to go right for the team. It had a string of poor results over several years. It also had an unfavorable lease agreement with the city of Phoenix for the home base of the team. Though the club had piled losses over several years, that was not what killed the team. One of the owners was experiencing financial stress in his core business activity. That ruled out indefinite underwriting of the team's losses. The club finally filed for bankruptcy in May 2009.

The Gym Operating Business has poor RoCE on account of its poor Credit Story

We are talking about gym chains here- not single shop gyms with a certain loyal clientele and having a renowned trainer. A gym chain cannot replicate the attractiveness of a single gym through a franchise model on account of this. A restaurant chain patron does not seek personal services – quite the contrary- he expects and hopes for uniformity in the taste of his Burger King Whopper across all restaurants of the chain. So, when gym chains expand, they can at best be low end operators. There are no cost savings by running a chain. Such chains obviously cannot support too much debt. And when chains expand using debt, disaster is baked into the business model.

It is hardly surprising that Chicago based fitness chain Bally Total Fitness filled for bankruptcy twice. Before its first bankruptcy filing in 2007 (even during the times when US

households were consuming like there was no tomorrow, the company was unprofitable). Prior to its bankruptcy, the company had more than 400 gyms operating in 70 cities. It also had gym operations in Mexico, Canada, Korea and China under different brands. Because the business itself was very dicey, the company tried to trick its customers into signing long term contracts. Bally Total Fitness had \$761 million of debt. Post its bankruptcy, it was taken over by a hedge fund wizard who spotted an investment story somewhere in the ruins. Even post bankruptcy, it was relying on refinancing rather than earnings for debt repayment. In the post bubble era, gym membership started falling and drove the company to bankruptcy a second time. And until the US household debt comes down, there is simply no credit story in the gym chain business.

Crunch Fitness is another gym operator which filed for bankruptcy, albeit only once so far. The gym operator had gyms in very fashionable locations in the main cities of the US, which caused its fixed expenses for lease payments to be high. These high fixed expenses when coupled with falling gym membership proved deadly for the company.

The same phenomenon will be witnessed in mid tier golf clubs and country clubs- clubs which did not restrict their membership to the very rich. These clubs, particularly in the US, had gone on a debt financed asset creation and asset improvement spree. The loans would haunt several banks in a big way, particularly banks which did not pay attention to the household debt metric.

The Toy Industry is no Child's play- Witness the Stieff Gmbh versus Smart Union Story

The changing global demographics is having a far reaching effect on the toy industry. But the conventional wisdom that toy companies in developed countries cannot succeed while those from China are unstoppable need not be true. Yes, the industry is a fairly low technology one. But witness the success of German toymaker Steiff, famous for its teddy bears. The

company has been making its toys by hand in a high cost economy like Germany for almost 150 years. But the company has grown from strength to strength. Business might slacken because two-third of the company's business comes from Germany, a country witnessing adverse demographics. The company has branched out to countries such as the US.

Compare this with the plight of Chinese toymaker Smart Union, which went bust in 2008.

Despite being based in Dongguan, the company's profits were not adequate, clearly pointing to the fact that low labor costs alone are not enough to ensure success. The company listed itself on the Hong Kong Exchange in 2006. Its clients included US toymakers such as Hasbro, Mattel and Disney. That was the key difference with Steiff which sells under its own brand name, thus ensuring that it captured a bigger chunk of business margins. Also, customers of Steiff are comforted that toys made by it are safe for children.

The US toy industry is also under stress. Other than Hasbro, which thanks to its low leverage has been going from strength to strength, the credit quality of most players is weakening.

The strength of the US brands is going to weaken as customers realize that irrespective of brands, the toys are ultimately made in China. It remains to be seen how Hasbro uses the economic crisis to score over rivals such as Mattel which are considerably weakened. Toys 'R' Us is weakened to the point that it relies on its real estate assets to get loans. Such transactions have left it saddled with high lease payments. In December 2008, toy retailer KB Toys, which had been in business since 1922, filed for bankruptcy.

How much Debt can Utility Companies Support?

Utilities are companies which provide certain services and which enjoy certain local monopoly rights and are regulated to protect consumers. Utilities could be suppliers of services to households such as electric power utilities, water utilities and rail transport utilities or providers of service to trading companies such as ports. In the pre-mobile phone

era, telecom operators also fell under the category utilities- now only interconnect issues need to be regulated and tariffed. The debt carrying capacity of these companies depends on the interplay between the strength of their monopolistic rights and the extent to which regulators prevent the abuse of monopoly power.

The capital structure decision of the companies operating in these industries is driven by how regulators allow the companies to price their services. For instance, in some electric utilities across the world, debt costs are a pass through to the end consumer while equity returns are fixed at a certain percentage points above the yield on government securities. The companies react to such incentives by gold plating the value of their assets.

Be Aware of Currency Translation issues of multi-country Port Concessionaires

The port operator sector across the world is consolidating with leading players operating ports in most continents. A large number of the port operations are in the form of concessions given out by the local government to operate a port for a certain number of years subject to some conditions. Hutchison Whampoa, one of Hong Kong's top companies, gets almost 25% of its income from operating 49 ports in 25 countries. PSA International of Singapore operates 28 ports spread across many countries. The AP Moller Maersk Group of Netherlands gets a chunk of its revenues from operating 50 container terminals spread across North and South America, Asia, Africa and Europe. Hence the port operators run currency risk when they translate their earnings in numerous currencies to their functioning currency. Additional complications are introduced in credit analysis if the currency in which the company has most of its borrowings is different from the functional currency of the company. These complications complicate the calculation of the correct return on capital employed metric, as we will discuss in the section below.

Did DP World's 2009 RoCE come from weakening its Balance Sheet for its Creditors?

DP World, one of the leading port operators of the world, is a subsidiary of Dubai World, an entity owned by the government of Dubai. We will not get into the financial problems of the Emirate of Dubai here. DP World operates in practically all the leading trading zones except the United States. In 2006, DP World had taken over P&O of UK, then the world's fourth largest port operator. Because the US authorities did not fancy a mid east based operator running its leading ports, the company was forced to offload the US ports of P&O. In November 2007, showing superb sense of timing from the point of view of its then current shareholders, the company had its initial public offering (IPO).

The most important assets on the company's balance sheet are concession agreements for various port operations in various countries, which it capitalizes as per the norms of IFRIC 12 on service concession agreements (as discussed in chapter 3). Its flagship concession is the 99 year concession for running the Jebel Ali port near Dubai. As of 31st December 2008, the company had \$5.8 billion of debt on its books, including a \$1.5 billion sukuk, a credit instrument which masquerades as something else (to their credit, DP World, in its annual report does not pretend it is a non debt instrument and shows it under the head "loans and borrowings").

Since the company operates in a number of countries, it gets concession income in various currencies. It translates these into US dollars. This makes sense to the creditor, because most of the company's borrowing is in USD. So, any loss in translating the income from various currencies is a lowering of real returns from a credit standpoint. In 2008 the company recognized directly in its equity a loss of \$1.43 billion dollars. This, from a creditor standpoint (but not from the stand point of the shareholders or from the standpoint of accounting standards) should have been done directly in the income statement because the loss of earnings in US dollar terms is a weakening of return profile to the USD creditors. By

directly debiting equity, the company understates the capital employed in the business and overstates the earnings and hence overstates the return on capital employed. Creditors would do well to do the adjustments before they assess credit quality. DP world also directly expenses equity for actuarial loss on its pension schemes. Again, the creditor should be adjusting this from earnings if the pension losses are for any reason other than short term market dislocation (however, this accounting is perfectly acceptable as per accounting standards).

This overstatement of earnings, from a creditor standpoint, has an additional debilitating effect for the creditor. In 2007, when the company had its IPO, it promised that it would payout 20% of its net income as dividend. This provides the management added incentive, to keep shareholders happy, to expense off as many items as permitted by permissive accounting, directly to equity. When creditors design covenants in loan agreements, they need to keep such issues in mind.

There are two aspects of dredging expenditure incurred by a port operator- capital dredging and maintenance dredging. The former creates a new harbor or deepens existing harbors to allow larger ships to visit the port and since the benefits accrue over many years, the expenditure needs to be capitalized and appropriately depreciated. In the case of maintenance dredging, which is incurred to restore the channel to previous depths, one has to be careful in evaluating which part of the expenses should be capitalized (and depreciated over how many years) and which should be immediately expensed. Else, the RoCE can be substantially misstated.

Europe's consolidating Electric and Gas Utilities: Trends favor higher RoCE for bigger Players

Over the last decade, due to various reasons, Europe's electricity and gas producers have been consolidating. Because many of the consolidations have been financed by debt, these M&A

activities have a short term negative impact on the credit quality of the companies involved. Longer term, the scale of the business, ability to conform to environmental regulations and the ability to compete in a single European market will see the bigger players getting superior returns on capital employed. In addition, large balance sheets might be required to obtain the financial flexibility required. Spanish power company Endesa was taken over by Italian energy company Enel. German energy major E.on AG was formed from the merger of two companies- VEBA and VIAG, which trace their origins to the 1920s. Through further acquisitions, the company has a formidable presence in Central Europe as well as in the UK, the US and in the Nordic countries. Germany's largest power producer, RWE, bought Dutch utility Essent in 2009 for €9.3 billion. In 2006 Spanish company Iberdrola acquired Scottish Power besides generation interests in the US. However, for most transactions, the consolidation is happening in the same currency zone-the Euro zone- reducing the currency risk from consolidation of debt and revenues. In 2008, on account of foreign holdings, Iberdrola had a cumulative negative charge to its equity of €2.7 billion due to currency translation. The credit risk for creditors comes from acquisitions being funded predominantly by debt and the overpayment for such an acquisition. In its 2008 balance sheet, Iberdrola had €7.25 billion of goodwill on its €85.8 billion balance sheet.

Many factors are driving the consolidation of Europe's power companies. Firstly, they are going to be regulated (once the disputes over takeover of former national champions are sorted out) on a Europe wide basis. And these regulations are far reaching in their scope- emission norms, open access across national borders etc. Secondly, as growth opportunities in their home markets become scarce, procuring growth through takeover of foreign firms become inevitable. Also, the demography and low economic growth prospects of these countries as they reduce consumption to balance their societal budgets implies that green field projects would be increasingly unnecessary. Companies like RWE, with higher than

17% return on capital employed have only two choices- retain the earnings and pursue acquisitions or go for share buybacks. RWE has been involved in acquisitions as well as share buy backs. Finally, these takeovers would result in increased pricing power as well as increased negotiating power with fuel suppliers and equipment suppliers. Even companies with lower RoCE such as E.on fancy acquisitions because they hope such consolidation will yield pricing power which will improve their RoCE. But that can happen only if they don't overpay for acquisitions.

The business mix of the different energy sources will change. Coal will continue to become increasingly unacceptable. Nuclear energy will definitely play an important role. The role of alternate sources such as wind power is not clear yet. RWE, like many European power companies, also has a natural gas distribution business. E.on AG entered the gas market through the 2003 acquisition of Ruhrgas. The company's plan to generate 24% of its energy from renewable sources by 2030 seems a tad ambitious.

Since European utilities have been running nuclear power plants for some time, the time to decommission many nuclear power plants is around the corner. The credit analyst needs to check if the head "asset retirement obligations" is fully funded. These numbers can be quite sizeable- France's amazing electricity utility EDF, which relies considerably on nuclear power, carries a €14.7 billion provision for back end nuclear power cycle and €13.8 billion for decommissioning. So, the total provisions are around € 29 billion (at the end of 2008) - something that should worry creditors if the French state ever decides to bring down its shareholding to marginal levels and if the estimate of this cost proves aggressive. E.on carried around €14.5 billion of such obligations on its balance sheet. The analyst needs to have an idea of the amortization profile of those liabilities. Analysts should check with technical experts to verify that the amount carried for such obligations in the balance sheet are adequate. Some American utilities have a moderate advantage here. Consider

Consolidated Edison which supplies regulated electricity, gas and steam in New York and conducts unregulated business elsewhere. At the end of 2008, the company estimated that law suits from asbestos related issues and worker's compensation would cost it \$ 9 billion over 15 years. The utility admitted that actual costs could be way off that figure. Under its rate agreements with the New York regulator, the company is permitted to pass this cost (asbestos law suits and workers' compensation) to the customers through future rate hikes. Hence the company shows the accrued liabilities as "regulatory assets".

The building of the so-called "smart grid" will have important implications for the RoCE of electric utility companies in many countries. How will the building of such a grid be financed? Would there be a toll on electric utilities or will governments take care of associated costs? To what extent would the utilities be able keep the enhanced returns from a more productive grid and how much of the benefits would have to be passed on to consumers?

Anglian Water's Credit Story depends on its Ability to secure Rate increases

The water supply business, including drinking water supply, has been in the hands of regulated private entities in countries such as the US and UK. The regulator monitors the quality of water supplied, the costs associated with the supply and has to approve rate hikes proposed by companies before they can be passed on to customers. Traditionally creditors to these businesses had nothing to worry. Too much was at stake for regulators to play hooky with the water companies' financials by not sanctioning rate increases when required.

The cost of water supply is likely to increase in the years to come. Ground water contamination is a fact of life in many places. And if there is more to global warming than hot air, the costs are going to go up further. With household debt being where they are and unemployment levels like to rise as drop in household consumption is going to cause

increased lay offs, how easy would it be to pass increased water tariffs to consumers in multi-party democracies (as opposed to in “single party democracies”) ? Independent regulators might want to pass the cost increases to consumers but political pressures will increase.

The water business was privatized in the UK in 1989 with an independent regulator, the Water Services Regulatory Authority (popularly referred to as Ofwat). For almost two decades, despite many unhappy voices, the system worked with the regulator assuring the water companies a tariff that ensured a return on regulatory capital. Tariff increases were linked to $RPI \pm K + U$, where RPI is the retail price index, K is a number determined by Ofwat for each water company to reflect what it needs above/below inflation to service customers and U is the amount of K not taken by a company in the previous year. When this framework is strictly adhered to, water companies were assured of steady revenue linked to costs, which incentivized them to load their balance sheet with debt to the maximum possible amount. Consider, Anglian Water, one of the leading water companies of the UK. It was listed in the London Stock Exchange in 1989 when the industry was privatized. At the end of the financial year ending March 31st 2009, the company had around £5.2 billion of debt, supported by total assets of around £7 billion- clearly a terrifying leverage if operating profits were not assured. Shareholder funds amounted to £1.5 billion. Anglian Water mentioned in its 2009 Annual report that it was beginning to have problems collecting receivables from consumers as they were hurting from job losses and other debt servicing requirements. What if the K factor is played around by regulators to prevent exacerbation of consumer distress? A combination of uncollectible receivables (which mean higher tariffs for paying consumers, thus increasing their chance of default) and increasing costs would put tremendous pressure on this leveraged company. On the other hand, we see a bright light in the distant horizon for creditors. When the stress gets unbearable, the company might be renationalized even though it would be an anathema to the ruling party in the UK as the

company was privatized by one of the party's great icons. The icon, a model of thrift herself, did not visualize UK households getting crazily leveraged. So, in one shot, Anglian's distressed debt might end up being backed by the faith and credit of the UK government. It might be argued that the UK government cannot take on more debt post its bailout of banks and stimulus programs, but recently western democracies have moved to the paradigm of passing the problems to the next government/ the next decade/ the next generation. So, we will not at all be surprised when re-nationalization occurs. A far cry from the individual responsibility preached and lived by the icon.

US water companies have a history of operating in the private sector but regulated in a slightly different manner from their UK counterparts. They face the same problems as the UK water companies but are not terrifyingly leveraged. Let's look at American States Water Company, a company founded in 1929 and that supplies water to the most prosperous American state, California. Because rate hikes might take time in getting approved, US regulated entities do not have to book losses from rate hikes not having been approved in a given period and costs being higher than revenues during that period. SFAS 71 permits companies to defer costs in the balance sheet as regulatory assets and liabilities when it is probable that those costs would be recognized in the rate making process in a subsequent period. As of 31st December 2008, the company had net regulatory assets (regulatory assets minus regulatory liabilities) of \$120 million. This is a sizeable number for the company whose total current assets were \$90 million. Credit analysts should keep track if this number keeps increasing in response to regulatory delays in approving rate increases. The interest coverage ratio, due to delay in rate increase fell from 3.5 times to 2.8 times. The company also witnessed increased uncollectibility of receivables. So, the two issues which creditors need to track for assessing credit quality are the quanta of regulatory assets as well as amount of receivable charge-offs.

East Japan Railway: RoCE to go up steadily- Hence Growth can be supported by more Debt

The Japan National Railways was privatized in 1987 into six passenger companies and one freight company. East Japan Railway (EJR) is one of the six passenger companies and serves Japan's main Honshu Island and transports 17 million passengers daily by operating 70 railway lines and 1705 stations (as on March 31st 2009). The company operates a five route network between Tokyo and the main cities in Eastern Honshu. Japan's credit rating agency, Rating and Investment Information Inc rates the company's debt AA+. EJR is the largest listed passenger railway company in the world.

About two-third of EJR's revenue comes from the transportation business. This business is somewhat regulated- the railway business law in Japan stipulates that the railway operators need to get the approval of the appropriate government authority when setting upper limit for fares and surcharges. EJR had not raised its fares since 1987 other than to compensate for tax increases. Fare increases were not really necessary as Japan operated in a deflationary environment since the bubble burst in the late 1980s. The rest of the railway's income came from station space utilization (retailing etc), lease rentals from shopping centers, offices on stations and advertising revenues from the "Train Channel" which broadcasts commercials on trains.

The fact that the company cannot raise fares unilaterally does not mean the company can afford to neglect the passenger. The passenger, particularly for long distance travel can always shift to competing airlines. And if the customer moves out, the value of auxiliary services such as commercials, retailing etc will also fall. The company got 71% of its revenues from transportation services in 2001- this kept falling ever so lightly, until it hit 68% in 2009. The company's target is to get this ratio down in the coming years by securing a higher growth in non transportation revenue. The beauty of this scheme is that this incremental revenue can be obtained from lower incremental capital expenditure than had it

not been running the railway network. By running the network, it has access to consumers to whom it can provide additional services with low incremental capital usage, thus boosting return on capital employed to very robust levels. Additionally, the company, by virtue of the rail network has access to real estate which can be put to productive use. Because of the company's healthy return on capital employed, its shareholder equity employed in the business kept rising in a healthy fashion from 2001 to 2009, while the debt outstanding kept falling. The debt equity ratio of the company, hence, fell from 5.09 in 2001 to 2.03 in 2009. Even if debt levels go up in the next few years as the company incurs capital expenditure, the debt equity ratio is on a long march downwards. Over the last decade, the company has ensured that its incremental capital expenditure is in line with its depreciation costs- so the return on capital employed was not secured by weakening the balance sheet and hence weakening the prospects of future earnings.

Productivity improves Capital Efficiency and RoCE in Logistics Services

Few industries are as correlated to the economy as the logistics industry, including providers of multimodal delivery of goods, truckers and rail road operators. Volumes can fall drastically when the economy at large underperforms. So, the first thing a credit analyst must do is look at the V_{GAP} of the society in which the logistics service provider operates, and the likely V_{GAP} over the currency of a bond/loan. After doing that, the analyst must assess the extent of fixed costs in the cost structure, financial flexibility to take short term losses and crucially, the RoCE in the past as well as the likely RoCE in the near future. Because in many parts of the industry the labor forces are highly unionized, labor relations are an important factor in the equation. Competitive advantage accrues to companies that perpetually improve their productivity (of course that is true in other industries, but in the case of logistics, that is the key to even short-term survival)

In the case of bulk logistics providers such as railroad operator Burlington Northern Santa Fe Corporation, a key productivity metric is gross ton mile per employee. The company was formed through the merger of Burlington Northern and Santa Fe Pacific and it serves the Midwest, the Pacific Northwest, the South Western and the South Eastern parts of the US. Burlington Northern's future is not only linked to the US economy, but trade, particularly trade with Asia. The US current account deficit is currently unsustainable. Over the next few years, it will balance through one of the following means- increased exports from the US to China or reduced imports from China. The former scenario is good for Burlington, the latter not so good. The latter is the more likely scenario and hence one can visualize lower business volumes for the company. Besides the stuff China requires from the US- access to high technology - cannot be exported on freight cars. But the cost structure of the company is somewhat flexible- the company can reduce costs in response to lower volumes. One should be more concerned about companies that lease locomotives and other equipment to Burlington- they might face lease breakages, which penalties, if any, might not adequately compensate.

The whole DNA of a logistics service provider has to be oriented to productivity improvements. Productivity improvement mean lower requirement for capital expenditure as existing resources can be flogged for higher yields. Burlington has been increasing the length of its trains and sliding speeds. Besides ensuring customer satisfaction, this ensures better use of current capital resources. The employee compensation at Burlington Northern for appropriate people is linked to lower fuel expended, forcing the DNA of a productive organization to spread to the lowest rungs. Technology has to be used intensely in the supply chain management process for optimal route management. It is also an industry where one does not have to worry about ageing inventory. The company finances its receivables

through a receivables sales program which ensures lower cost of funds (because it is cheaper than unsecured debt).

The importance of technology as a driver of RoCE in the logistics business can be clearly seen if one goes through the 10K statements of United Parcel Service (UPS) – the world’s largest package delivery company in terms of revenue and value. The company belongs to the segment of the logistics industry called “less than a truck load”. The delivery vessel at the last mile is a truck, while long distance movement of parcels happens in the company’s aircraft. The trick is how efficiently this network of planes and trucks is put to use. At the heart of the company is the software that does the cost and route optimization for each package delivery. Despite running an efficient operation, UPS can run into problems on account of its less than adequate capital structure. Particularly worrisome is the burgeoning unfunded pension of more than \$6 billion, almost the size of shareholder equity. The debt size is also worrisome. The company is headed for a big restructuring in the not too distant future. UPS’s biggest competitor in the industry, FedEx, though much smaller in size, seems a better credit in the near future with a sounder capital structure.

A pure services provider in the logistics business is C.H Robinson. The company is one of the largest third party logistics companies in the world. The company does not own any transportation assets- it relies on the transportation assets of other companies. The company transports customers’ freight through contractual relationship with about 50,000 transportation companies. The company succeeds if it is able to provide the lowest cost and reliable solution to a client’s logistics needs. Obviously the company does not need debt and is beyond a creditor’s purview other than to realize it can be a dangerous threat to companies that a creditor finances. It serves to drive industry prices down.

Another leading manager of supply chains is Hong Kong based Li & Fung Limited. The company draws its financial strength from its global sourcing power. Among other things, it

sources apparel for retailers such as Wal-Mart and Target. The difference between FedEx and Li & Fung is that the latter makes money by procuring from the lowest cost producer while the former charges its customers a toll for use of its supply chain. Because Li & Fung owns the supplier relationships, it is in better control of its destiny and has a better credit story.

Key Takeaways from this Chapter

It is intuitive that an enterprise that does not generate adequate returns for the providers of debt and equity capital over a period of time is destined to be consigned into the garbage bin of failed enterprises. When that happens, the company needs to be either liquidated so as to provide some recovery to creditors or the providers of capital must take a haircut on the face value of capital provided. Early sign of a failing business is when returns on capital fall and perhaps plunge into negative territory for periods more than a couple of years.

To be useful, the return on capital must be calculated correctly. That requires items like depreciation be correctly estimated. Any underprovision of depreciation might make return on capital employed seem higher than it actually is for a period of time- thus pushing trouble to a future date. Thus creditors have to be wary of underestimation of non cash charges such as depreciation. Also, creditors must be watchful of adjustments to equity that directly happen in the balance sheet- the credit analyst must use his judgment to decide whether it is appropriate that such expenses should be deducted from the earnings before interest and taxes or whether the handling is appropriate. If the former is the case, the adjustments to shareholders' equity must be reversed for the RoCE calculation.

Unfunded obligations such as under funded pensions are part of the capital employed by a company. These under funded obligations are like debt- only worse because in a period of falling stock prices, the quanta of obligations might rise. Credit analysts, in the years ahead,

would do well to pay attention to this category of capital. Until now, when companies failed, they would dump their pension obligations on to the government agencies. These agencies are now technically insolvent in many countries. There soon might come into play laws which require completely funding of pension obligations before any dividend is paid out. That would be good for creditors as it prevents their claims from being subordinated to those of the pension fund investors.

For the financial sector, such as the banking sector, the correct metric for credit evaluation is return on assets (RoA) and not RoCE. As long as the RoA is greater than the ratio of interest costs to total assets, all is well provided there is adequate cushion for delinquencies. Since the banking sector makes a living by borrowing short and lending long, it exposes the institution to interest rate risk. So, before the credit analyst does a RoA evaluation, he must do a stress scenario solvency check by valuing the assets and liabilities under a scenario of sharp increase in interest rates. If all is well post the calculation, the analyst can proceed to RoA estimation. The analyst must supplement the RoA calculation with an estimation of the net profit margin. That reveals the cushion available for meeting fixed obligations such as operational expenses and debt servicing costs in an environment of increasing credit losses. RoCE has profound impact on the long term economic health of a country. A country having only low RoCE industries might find its banking system swamped by excessive non performing assets. This misdirected capital deployment will starve deserving industries and companies of capital, thus slowing economic growth over a period of time.

Chapter 8 Management and Covenants to keep Management honest

Usually, it is not sensible for a credit analyst to look at the financials of a company if he is not convinced about the quality of management as managements have an impressive track record of running aground sound companies. It is not a key driver if one were investing in commercial paper or other short term liabilities of a firm. In that case, current financial strength should suffice to ensure timely debt servicing. But, the longer the proposed credit exposure, the greater the importance of management virtues and vices. Creditor friendly management are like codfish that lays a thousand eggs without making much noise- unlike the noisy hen that cackles after laying a single egg- that too after using aggressive accounting. Managements can change, either due to shareholder action or an M&A transaction. How is the lender to ensure continued attention to financial prudence and protection of creditor interests? Covenants, to some extent, ensure that management does not indulge in action way out of sync with creditor interests. A credit analyst should be aware that covenants are no substitute for continued worrying. The business might be run aground even while satisfying covenants. This could be done through continuous weakening of the balance sheet (not necessarily through procurement of more debt which might be prohibited, but by real deflation of asset values thanks to mismanagement, which in turn causes real gearing, not balance sheet revealed gearing, to go up). So, though covenants offer some protection to the creditor by ensuring that management sticks to the straight and narrow, they are definitely not a panacea. One advantage of covenants is, theoretically, the moment they are breached, the creditor can recall his loan and if the borrower is unable to cough up the cash, the borrower can be restructured. This will increase the chances of higher recovery than waiting and seeing the company's assets loose even more value.

There can be no cut and dry rule on which companies to avoid purely on account of management inadequacy. But there a few common traits of managements which have pushed their companies into trouble and which should be pointers to a financial analyst who wants to probe deeper before taking a long term credit call. Or even an equity call.

Management's Moral Balance Sheet

Integrity and commitment are key management virtues for creditors. Management integrity can be gleaned from the quality of the company's accounting. Other traits of lack of management integrity include falling foul of regulators and law enforcement agencies. Managements comfortable with conflict of interest and having shriveled, bonsai moral outlook are also red flags. Creditors should remember that "the law often allows what honor forbids". Imprudence with shareholder resources and abuse of privileges such as abuse of private jets are symptomatic of managements which are self serving and are likely to hurt creditor interests down the line.

Aggressive Accounting

Accounting aggressiveness is symptomatic of other unethical behavior and sharp practices. Wherever the culture permits or even encourages such practices, trouble lies a few quarters or years ahead. Meeting artificial quarterly earnings targets at all costs would force employees into unethical behavior causing pain for all in the long run. Aggressive accounting can come from overstating earnings or asset valuation (particularly assets of finance subsidiaries) and a benign indulgence towards liability valuation.

Earnings could be overstated by under valuing inventory used in production or through artificial sales which get converted into receivables that are uncollectible. The classic case of such overstatement happened at Sunbeam Corporation, a maker of grills, blenders and electric blankets. In 1996 the company hired Al Dunlap as its CEO. Dunlap had a reputation

for slash and burn and was known as “Chainsaw Al” because of his penchant for slashing jobs. Within four months of arriving, he shut down 12 of the company’s 18 plants and eliminated half of its 12,000 employee positions. From the second quarter of 1997, sensible analysts started getting worried about the company’s very high inventory and receivable levels. This occurred because Dunlap did a lot of “bill and hold” deals wherein retailers bought products at large discounts so that Sunbeam could book the sale and then held those products in third party warehouses until they were required at the stores. This shifting of sales from future quarters to current one resulted in a huge jump in sales and receivables. An example was the big uptick in sales of electric blankets in the third quarter of the year though such sales usually move up in the fourth quarter in response to the cold weather. Likewise, there was a huge unseasonal increase in the sale of grills in the fourth quarter. Dunlap was a colorful man- he grabbed the shoulders of an analyst who dared to question his practices. Obviously, this way of boosting sales and profits could not carry on forever and when the fraud was discovered, Al Dunlap was fired after spending less than two years at the helm of Sunbeam. When receivables suddenly shoot up, people must get suspicious. But a more fundamental question needs to be asked by the analyst- why are the sales shooting up? Has there been a new iconic product introduced by the company? Or has there been a change in selling practices?

Jack Welch of General Electric: Real and imaginary Cookie Jars are not kosher

The hero of the pre-Sarbanes Oxley era in the United States, when accounting and reporting were stretched to the seams, was Jack Welch of General Electric (GE). He had an uncanny ability of meeting quarterly earnings forecasts to Wall Street analysts. Such was his ability for “making the numbers” that equity risk premium had practically disappeared from the valuation of GE’s stock. Why have risk premiums when the earnings were as certain as the coupon payment on a Treasury bond?

There were no metaphors or caveats in the confession statement on earnings tinkering that Jack Welch made in his best selling autobiography “Straight from the Gut”. In that tome he refers to an incident that happened at the GE owned investment bank Kidder Peabody. Kidder (and hence GE) had overstated revenues in the 1980s on account of fraud. On the discovery of the fraud, GE had to take a \$350 million write down, which would have impacted GE’s quarterly earnings. But what Welch found singularly laudable was that the heads of the different business offered to cover the earnings hole with goodies from their personal earnings cookie jars.

One approach to the whole incident is to say- hey, at least various group companies had accounting cookie jars from which they could pull out rabbits whenever the need arose. So, they had a reserve of real earnings. We have a few issues with that attitude. Firstly, candor, a virtue which Welch never tires of extolling, was clearly missing in Welch’s most important dealing with his stakeholders- the presentation of financial statements. Secondly, while the cookie jars of the manufacturing subsidiaries might have been real, those of its financing subsidiary, GE Capital, which contributed a big chunk of GE’s earnings, were probably not. This is particularly true of the insurance arms of GE capital, where, in the short term, the size of the cookie jar was what you wanted it to be. Thirdly, a culture in which earnings reports were treated with such contempt should not have inspired confidence among stakeholders. Fannie Mae, the giant US mortgage guarantor started with understating earnings, keeping the rest in cookie jars for the rainy day. But the bridge from understating revenues to overstating revenues is not too long a bridge to cross as had happened at the mortgage guarantor. Once an earnings report is not a sacred cow, having it in a hamburger is no stretch. The moral of the story: keep away from companies that are either overstating or understating revenues. The management culture of such organizations is just not right and sooner or later the bad stuff will hit the fan. Fannie Mae’s creditors were lucky because the US government bailed

them out. The shareholders were not. GE's shareholders found out to their cost when the share prices crashed as Welch's successor could not keep up with the earnings game on account of tightened norms for accounting in general, and accounting for special purpose entities (SPEs) in particular.

The irony of the whole GE earnings situation never seemed to have hit Welch even after his retirement in 2001. In fact, he took the charade to new heights during the first quarter of 2008, when he threatened "to get a gun out and shoot" his successor for not making the targeted earnings number. The poor man, operating in a tough environment without too many of the crutches his predecessor had come to rely on, could not come up with an apt rejoinder without letting fall a skeleton or two from the well stocked cupboard behind the kimono.

Perhaps, when business books are re-written in a decade, it might be said that the smartest thing Welch did was to retire in 2001, before stringent accounting norms came into being in the post Enron and WorldCom world. In August 2009, GE paid \$50 million to settle a civil fraud suit brought by the US Securities and Exchange Commission for accounting irregularities (without admitting or denying guilt of course). The company agreed to several remedial actions with regard to its accounting and making "appropriate personnel determinations" where the accounting excesses occurred. A further \$ 200 million was spent by GE for legal fees in fighting the lawsuit. Because GE does have some very sound businesses (businesses which had been flourishing for decades before Welch resorted to the black magic of financial engineering), due to which the company did not implode, Welch escaped the fate of Dennis Kozlowski of Tyco or Jeff Skilling of Enron who are cooling their heels far away from normal human habitation for not rendering "honest services".

Management Integrity is crucial in Companies where Cash is received upfront

In insurance companies, premium cash is received upfront and claims are paid off later. If a management siphons this cash for its own devices, it will not be evident until much later when claims fall due. Through under reserving, the fraud can be perpetrated for a considerable period of time.

Management Competence

How do typical CEOs and senior executives perceive their role? To say that a CEO wanted to reach that position so that he could be an honest servant of the shareholders who pay his salary is too prosaic. Obviously, the CEO reached the position because of an overweening desire to exercise power. The hope for creditors is that having reached that position, he works for improvements and changes in a gradual fashion, rather than step out with the desire to be transformational like Greek mythological character Jason setting out with the Argonauts in quest of the Golden Fleece. An extension of this urge is the desire to be recorded in the annals of business history. Even worse for creditors is the motivation to loot and scoot through some lopsided compensation scheme over which shareholders had little say.

Ideally, a CEO should have risen through the ranks of the company so that he would have understood the products and services, suppliers and customers as well as the organizational culture of the company. Transplanted CEOs make sense only when a company is deep in trouble - in which case, creditors have no business being around (that is if they analyzed the company correctly and got out before the company got into trouble). What creditors would love in senior management is flawless execution. Everything else is subordinate.

Lack of Expertise

For various reasons, sometimes, boards put in place management teams which just lack the expertise or the passion to be working in the business of the company. Honda's passionate

engineering management, who are passionate about cars, has ensured that the company stays on top through produce of flawless products. There are just too many reasons why General Motors went down – but one of the leading causes was the induction of marketing men into the upper echelons of management, as if the produce of the company was soap or lipstick.

The day Chuck Prince (the same one who felt that “as long as the music is playing, you’ve got to get up and dance”, even if the music was being played by the Pied Piper leading you to doom) assumed the reins of Citigroup, doom was around the corner. Here was a legal person brought in to handle the legal problems that the company faced, forgetting that a legal person can only lead a legal firm- not a bank. Yes, the DNA for failure of the bank had already been impregnated before Prince assumed high office- but his elevation made disaster inevitable.

“Where there is no vision, people perish”, as the book of Proverbs succinctly put it.

Managements which lack expertise in the business of the firms they lead tend to be flat footed in their communications with stake holders. Thanks to lack of understanding, they fail to inform or inspire. When a minor disaster strikes, this poor communication pushes the company across the brink. Incompetent managements tend to rely a lot on outside helpers such as management consultants and investment bankers. They tend to turn to counselors such as the wandering minstrel from the land of *jugaad*, who when he is not cogitating mightily on his latest book, acts as a confessor to a CEO experiencing intellectual convulsions and convolutions. Citigroup and UBS took the advice of external consultants to get into CDO investing, even when they did not have the requisite know how. The decision caused investment losses of \$50 billion at each of the banks. Fact is management consultants do not have an impressive track record of actual business success. C.K. Prahalad, a management guru of no mean standing, tried his hand at actually running a business. Needless to say, the venture failed. He said that he was no good at “blocking and tackling” required in actually running a show. It is one thing to write a case study on Shakespeare’s

methods. It is quite another to be Shakespeare. Any resemblance between the two activities is purely coincidental.

Non Playing Captains

London headquartered Standard Chartered Bank operates in 70 countries. 70% of the group's income and 80% of the group's profits come from Asia. Yet, the CEO and the board operate out of London. Even in these days of advanced communication devices, this management hands-off approach seems puzzling. It should not come as a surprise that the bank has been involved in tiffs with regulators and scandals in various countries over the last few decades. The bank was recently in the news because unlike most big banks, it managed to skirt the subprime crisis. But that was more due to chance than conscious thought on account of the bank's limited exposure to the US and European countries.

Management Risk Appetite

Defensive Management

Defensive management is always a welcome sight for creditors. A classic example of defensive management was when GM under Alfred Sloan took stakes in aero companies like Fokker and Allison, without putting too much capital at risk, when it could not fathom the future of transportation in the early part of the twentieth century. Outlandish as it may seem now, people in the early part of the automobile and aviation industry history thought individuals traveling in their personal aircrafts could be the future of transportation.

Hedging the bets through stakes in aero companies (without staking too much capital) was a sensible strategy from a creditor standpoint.

Obviously, creditors should be uncomfortable with managements or institutions which bet the ranch on the success or failure of a single product. In their book "Built to Last" Jim Collins and Jerry Porras talk glowingly about IBM's bet on the IBM 360 and Boeing's bet on the

Boeing 707 that could have destroyed the company. That's good for shareholders (particularly leveraged ones) and employees (leads them to what pastor Rick Warren would have called a purpose driven life) but not good for creditors. Outsized bets should be made in entities which do not suck cash flows from creditor backed entities. Big hairy audacious goals should certainly be outside the realm of investors who do not share the upside of such risky bets.

Management compensation structure also has a role in enhancing or reducing the management's risk appetite. When the compensation is structured towards high rewards if a leveraged bet comes through, one can be sure that management will not be taking the high road of sensible risk. So, if a company hires a new CEO with terms and conditions that favor the assumption of high risk, creditors should start plotting their exit strategy. One does not know if disaster will strike in one year or five years, but it does not make sense following the crowd to the exit door.

Organic growth at a company involves a lot of hard work. How much more fun it is to dash out on some adventure like dashing knight young Lochinvar! How much easier is it to procure growth through M&A. We have stated elsewhere that M&A transactions bring with them unexploded shells in the form of contingent liabilities and different organizational culture which increases integration risk. Added trouble comes if the firm's capital structure veers towards a debt orientation post an acquisition. Acquisitions might make sense for creditors only if they are suitably small, made with the intent of procuring technology or for securing real (as opposed to fevered expectation of) pricing power. The expenses undertaken to complete a merger transaction with the intention of bringing about cost savings have a tendency not to go as per script.

Propensity for share buybacks is another indicator of management risk appetite. Possibly, share buy backs have no honest intention but to boost the short term price of the shares

(unless the company has stopped capital expenditure on account of limited growth prospects- in that case it makes sense to return capital to providers of equity and debt capital- not equity capital only). True, share buybacks are better than M&A, because if extra cash is coming out of the company, it at least ensures that such a cash is not leveraged through an M&A transaction– thus contributing to additional risks.

Overpaying for Government Licenses

When governments hand out licenses for various scarce resources such as spectrum for telephony, exploration and mining rights, real estate development rights etc, through a bidding process, companies can get themselves into a jam if they overpay for such intangible assets. Overpaying can drastically reduce return on capital employed for an extended period of time. Matters would get worse if such licenses are procured through extensive usage of debt. Similar problems can arise out of revenue sharing agreements with the government in public private partnerships, where the winning bidder is chosen based on which bidder would share a higher percentage of revenues with the government. Managements with high risk appetite and which have a desire for being featured prominently in business journals are the ones that tend to overpay for licenses.

Overbidding for 3G Licenses by Europe's Telecom Players caused severe Balance Sheet Stress

One of the most interesting episodes of the dot com bubble in the late 1990s and early 2000 was the handing out of 3G licenses by Europe's governments. The telecom companies had the irrational fear that if they did win the 3G license bid, it would be the end of their business. So blinded were managements by this thesis, they forgot fundamental notions such as return on capital employed and the winner's curse. Disciplined managements know when to walk away. They realize that competitors who overpay for assets will get into financial trouble and they might be forced to sell out, either the whole company or the license at sharply lower

prices. In 2000, thanks to overpaying for licenses in auctions in various countries, the seven largest telecom companies in Europe were saddled with more than \$ 170 billion in debt.

Debt equity ratios deteriorated and interest costs jumped sharply higher as creditors demanded higher rates to compensate for the higher risk assumed. Deutsche Telekom, France Telecom, British Telecom, Telecom Italia, Telefonica, Sonera and KPN (of Netherlands) saw their credit ratings and credit standing fall by the wayside. In addition to the license fee, further investment in infrastructure had to be done before the 3G services could be operational.

The lesson for the creditors from this fiasco is that lenders to companies in industries which might bid for licenses have to incorporate restrictions on size of bids without creditor approval in the loan agreements through covenants. Otherwise, the lenders might find themselves exposed to a company of a vastly different credit profile from the company they had lent money to.

Management's attitude to big Ticket Capital Expenditure and their Funding

Companies need to make big capital expenditure decisions to support their long term growth and survival. The alternative is to take over companies that already own those plants. Such a course of action reduces project execution risk if the acquisition is done at the right price, but it comes with contingent liabilities from the company's past actions such as environmental liabilities. Also, an acquisition does not involve hard work and hence is the preferred course for management which might not be too worried about the long term health of the company.

More than the issue of acquisition versus putting up a green field project, the real risk for creditors is how such acquisitions/ projects are financed. Would the pursuit have a debt flavor? Or, would it be predominantly funded through internal accruals and the existing

gearing of the balance sheet preserved? This is one of the items that can best be ascertained through interaction with management.

Donald Trump and Serial Bankruptcy

Donald Trump is a supremely entertaining individual. Alas, creditors have always come out worse in their dealings with him. Surprisingly, creditors continue to back him despite taking enormous haircuts each time, without noticeable alteration in Trump's risk appetite or evidence of learning from past mistakes. Such creditors seem to be living testimonies that there is one born every minute.

In February 2009 Trump Entertainment Resorts, 28% owned by Donald Trump, filed for bankruptcy for the third time. Surprisingly, the bondholders included several hedge funds and supposedly savvy banks. What are the reasons why creditors should have kept a safe distance from Trump, no matter how alluring the yields on loans were? Firstly Trump has an enormous appetite for debt. Secondly, execution problems and cost overruns have plagued several of his real estate projects, which drastically reduce their return on capital employed. And a chunk of revenue is captured by entities owned by Trump for providing services and use of the Trump trademark. Clearly, Trump's interests were not totally aligned to those of the entities where creditors' rights were locked in.

Another lesson for creditors is that they should keep a safe distance from companies whose credit stories are linked too closely to one individual. Examples of such companies include Martha Stewart's Martha Stewart Living Omnimedia and the hobby pursuits of several celebrities across the world. There could be an equity story lurking somewhere there, but definitely no credit story. Typically, their management skills are suspect and the mantra of managing a little and snoozing a little does not usually work to further creditor interests.

Management Hubris

Managements that love the Limelight

Management communication to stakeholders is crucial. Managements should be on all communication medium with supporting data, the moment there is a whiff of doubt about the company's products, services or solvency. At such moments, communication in plain and comprehensible language is the difference between survival and demise. We had mentioned in an earlier chapter that we do not believe in the notion of a liquidity crisis for a single financial institution. Either a company is solvent or it is not. If it is solvent, communication is the key. If communication is poor, no amount of liquidity back ups can ensure survival till sunrise. When an organization is under threat, there is no such thing as too much communication. And when all is well, shareholders should insist that management earns its keep by ensuring things stay that way, by staying focused on the job and not hog the limelight either through their words or through their lifestyles.

Whenever the reservoir of management credibility is expended frivolously, none would be available when the company's welfare requires it. Even though Microsoft founder Bill Gates is one of the richest men in the world, no body talks about his lifestyle. And when he appeared on the communication mediums while he was still CEO, the gravitas he brought to conversation ensured that Microsoft benefited from the exchange. All the stakeholders would feel comforted that there was a competent man at the helm- and that is worth its weight in financial credibility. In short, old fashioned virtue, even if it is not fashionable to talk about it anymore, brings comfort to stakeholders, including creditors. If a top manager is a bridge champion, it makes sense for all to hush the fact up until the manager is through with his innings. Else all stakeholders start wondering if they have a non-playing captain at the helm of affairs, which seldom benefits a company's credit profile.

Sprawling conglomerate Tyco was terribly run in the late 1990s, but the top executive's tendency to stay in the limelight for the wrong reasons compounded problems. When people started talking about the Lehman CEO's art collection, people should have started to worry. We worry about several leading companies in the world where managements love the limelight. There is too strong a correlation, between failed organizations and managements being in the limelight for the wrong reasons for us so ignore it as an irrelevant parameter for credit analysis.

The Icarus Complex and the clever by half Management

Shareholders and creditors have reasons to fear managements which start playing capital market games using their companies as vehicles for satisfying their cowboy instincts. The problem is that shareholders sometimes tend to be ambivalent about such management. When the result of such adventures results in a booty, shareholders rejoice and fete the top executives, giving them the adrenalin rush to set out, Ulysses like, on new gambling voyages with other people's money. When such striving and seeking sink the ship, shareholders cry foul, but they have no one to blame but themselves for encouraging such extra curricular pursuits in the first place. Such managements belong to hedge funds where the mandate is to roll the dice.

Porsche Management: When Engineers took to Financial Engineering

There is a lot for shareholders and creditors to learn from the Porsche –Volkswagen (VW) episode of 2008-09, where within a space of less than a year, Porsche management went from being the smartest kids in town to those who plunged their company into a forced merger with an inferior company.

Porsche CEO Wendelin Wiedeking had by the end of 16 years of stewardship of the company converted the company into one of the best performers in the industry based on the return on

capital employed metric. And like most successful automobile company executives, he was an engineer by training. Marketing and styling are important in the auto industry (a fact recognized by Alfred Sloan early in the industry's history), but those skills can be procured through hiring a few individuals talented in such walks of life. The quality of engineering and production techniques is at the heart of a car maker and what separate the German and Japanese automakers from the rest.

Anyway, despite running a very successful firm, he was not content and sought to buy a much larger automaker- VW. Various reasons had been given for such a desire. Firstly, new emission norms are to come into effect in Europe in 2015, which would result in huge fines for automakers such as Porsche whose vehicles have higher emissions. Since emissions are measured on a group basis, becoming a part of the VW group would have solved the problem as most of VW's cars have low emission levels. Taking over a company merely for meeting a government regulation might not result in the best return on capital employed. Is the cost worth the integration problems and such contingent liabilities? Would it not have been better to price in the fines while its engineers worked on sorting out the problem? That approach at least involves a correct pricing of the problem, part of which could have been passed on to its devoted customers. The second purported merit was saving costs through employment of common platforms for Porsche vehicles such as the Cayenne and VW's Touareg. Sharing of platforms can be done efficiently without the hassles of a merger.

More than the takeover attempt of VW, what catapulted the Porsche management to fame was the hedge fund like investment play on VW shares in October 2008. Porsche squeezed short sellers of VW shares when it delayed its admission that it had acquired 42.6% of VW's shares, while securing a further 31.5% in the form of secured options. The short sellers were trapped and for a few days VW was the most valuable company in the world. Thanks to the profit from the operation, its profits exceeded revenues, helped by appreciation in the value of

VW shares. Though the operation had a happy outcome for Porsche stakeholders, creditors should never ascribe mythical powers to such managers, and keep away from them or discipline them through covenants.

Porsche increased its stake in VW to 50.8% in January 2009. However, it did so by tripling its net debt to €9 billion. In addition, there was the VW Law, discussed later in the chapter, which gave the state of Lower Saxony blocking powers. Despite Porsche holding majority of VW shares, it could not take control of VW, thus was not able to take control of VW's cash pile for reducing its debt. The VW management, with the help of the VW Law, did unto Porsche what it had done unto the hedge fund short sellers. Porsche attempting to takeover VW despite the fact that the VW Law (notwithstanding injunctions from the European Commission) was still in effect, was a clear case of management hubris at work. Unable to solve its debt problem, Porsche had to surrender and agree to be taken over by VW. The Porsche CEO lost his job- but Porsche shareholders would have gained if they had sacked the CEO right after the hedge fund adventure.

Schaffler's Continental AG Takeover: Should Corporate Carry Trades be financed by Creditors?

Spot the differences among the following: a) an individual buys a home with debt and leases it out to tenants. He plans to use the lease rental to service the debt and hopes that house prices would go up by the time the debt matures. So, the individual, without putting any of his personal equity at stake hopes to make money by selling the asset at a higher price and repaying the debt b) A hedge fund borrows in a low yielding currency and deploys it in a higher yielding currency, using the income to service debt and pockets the difference between the yield and financing costs. The hope is that the lower yielding currency will not appreciate against the higher yielding currency when the debt has to be repaid c) a corporate borrows for a short tenure to buy equity stakes in a company, perhaps with an M&A goal in mind. The hope is that a combination of income from the equity stake and appreciation of equity value

(though the evidence is overwhelming that companies would over pay for the equity and instead of appreciation of equity, there would be depreciation) would ensure that the debt is serviced. In all cases, the hope is that an asset would increase in value (including the hedge fund case, where the hope is that the high yield currency would appreciate). All three endeavors rest on hope and not necessarily on facts. And facts are the only things that should guide a credit analyst. Hope belongs to the venture domain. While everyone is entitled to their own hope, everyone is not entitled to their own facts.

Bankers financing M&A discovered the perils of such activity during 2008. The collateral backing what they thought were low risk loans sharply fell in value. When the M&A risk is coupled with an overreaching and clever by half management such as that of German auto ancillary Schaeffler, the risks are compounded. Schaeffler is a family owned firm that makes bearings for cars. The company's target was Continental AG, a car parts maker three times its size. While there might have been some industrial logic to the merger, the hubris of the management was demonstrated when it chose to go for the acquisition funded entirely by debt- that too short term debt. Also, the company targeted exactly half the shares of Continental (again betting on things beyond its control). Around the time the company came up with its offer, markets crashed, and instead of buying half the firm for €6 billion, almost all shareholders of Continental tendered their shares. So the company had to borrow around €11 billion, beyond what its internal cash generation could service. Continental itself had compounded the problems- it too had indulged in debt financed acquisitions and the bill collectors were at the door. Around this time, demand for the goods of both Schaeffler and Continental collapsed. Because of their overreach, the family controlling Schaeffler stood in real danger of losing their company.

Creditors should be able to identify symptoms of management overreach and hubris when the management starts betting on too many facts beyond its control. The reason for such M&A pursuits can be best summed up in the words of the poet Water Scott

Lordlings and wtlings not a few

Incapable of doing aught

Yet ill at ease with nothing to do.

Managements that pick Fights with Governments, Regulators and the Public

A clear sign of management hubris is when it picks up fights with governments and regulators. A company need not be operating in a banana republic for such fights to have adverse results. In some cases it can destroy a company as the case of Russian oil major Yukos demonstrates. Having regulators or governments stare at a company with an evil eye can result in unfavorable rulings in cases where there is an even balance of merit and demerit on the company's side. As far as possible, shareholders should discourage political forays while the top executives earn a salary from the company. The more the executives keep their opinions to themselves while in office, the better it is for all stakeholders. There are times, confronted with no choice, a management could take on a government or a regulator to court to protect the interests of the corporation. However, that needs to be the absolute last resort.

Managements who do not have their ears close to the ground can provoke governments and potential customers without even realizing that their actions are provocative. In 2008, the top executives of General Motors, Ford and Chrysler came to Washington to request lawmakers to bail them out of the consequences of their own mismanagement. Their mode of transport? Chartering private jets. That is did not occur to them that their action would provoke an outcry went hand in hand with the fact that they produced cars no one wanted to buy. Basically, they were out of touch.

Telstra Management goes out of the way to pick a fight with the Australian Government

Australian telecom firm Telstra came into existence in 1993, though it can trace its origins to the 1901 establishment of the Postmaster-General's department for managing domestic telephone, telegraph and postal services. In 1997, the company was privatized and one-third of Telstra's shares were sold at various stock exchanges. Telstra's management got into a fight with the Australian government in 2005, which ill served its stakeholders. The then government refused Telstra's requests to change certain operating rules. The rules would have required the company to share any future high speed network with rivals, at rates which Telstra felt were too low. The government changed hands in 2007 after an election, but the Telstra management succeeded in infuriating the new government too. When the government came up with a tender for creating a national broadband network, Telstra treated the process with contempt by submitting a shabby 12 page document. The infuriated government removed Telstra from the tender process. To compound the company's woes, the government cancelled the whole tender process and instead decided to build the national network itself. The project, built with the latest fiber technology, would render Telstra's network of copper wires obsolete.

Both the chief executive and the chairman of the company were involved in this combative relationship with the government. Fed up of the confrontation, the board, to protect shareholder interests, removed them both from their positions in mid 2009.

Managementism destroys Capital

A management's colorful lifestyle, lived in the public eye is a distraction that stakeholders can do without. The need for extra cash for supporting lifestyle has a tendency to encourage fraud. In 1982, the CEO of investment bank Salomon Brothers was the one with the highest pay at a public company – he drew a salary of \$ 1 million. Now such compensations are

way- way higher- firms are run for management and less from the perspective of the providers of capital. The move from capitalism to managementism not only destroys wealth and societies- it is harmful to creditors.

Picking a fight with Auditors

Whenever auditors qualify the accounts, the signs are ominous. Auditors, who rely on the benevolence of management for their dinner, would hardly be eager to disagree with company management. So, qualification of accounts is a serious measure which would not be resorted to easily. On the other hand, auditors have come up with subtle ways to protect themselves from lawsuits through use of circumlocutory language while certifying the accounts. The credit analyst's antenna should be clued on for receiving those subtle signals. Picking up those signals is a sound way to avoid anguish later.

Management Narrative

A key aspect of a management's role is management communication. Warren Buffett states the following in his 1979 report to shareholders which can be used as an advice for all management communication-

“But when you do receive communication from us, it will come from the fellow you are paying to run the business. Your chairman has a firm belief that owners are entitled to hear directly from the CEO as to what is going on and how he evaluates business, currently and prospectively. You should demand that in a private company; you should expect no less in a public company. A once-a-year report of stewardship should not be turned over to a staff specialist or public relations consultant who is unlikely to be in a position to talk frankly on a manager to owner basis.

We feel that you as owners are entitled to the same sort of reporting by your manager as we feel is owed to us at Berkshire Hathaway by managers of our business units.....We don't

expect a public relations document when our operating managers tell us what is going on, and we don't feel you should receive such a document"

You can replace the word owner with creditor, and the fundamental truth of these statements does not change. Not all companies follow Buffett's injunctions.

The Management Priority Triangle and Creditor Interests

When management is not thinking of its own interests, it is focused on the interests of either its shareholders, employees or its customers. Sound management needs to focus on all the three elements of the troika in the right proportion. When this triangle of management priority snaps due to excessive focus on one element- shareholders, employees or customers, creditor interests are harmed. Excessive focus on keeping employees happy might cause cost structures to spin out of control. Too much attention to shareholder interests might result in employees getting disgruntled and resorting to boosting short term metrics of performance. Cutting corners under the garb of cutting cost might be resorted to by such a management. BP's credit risk profile changed over the last few years when the management focused almost exclusively on shareholder bottom line at the cost of safety and all else. Excessive attention to customers might result in unviable cost structures and stressed out employees. So creditor interests are best protected not when management pays attention directly to creditor interests but indirectly by taking care of shareholders, employees and customers to the appropriate extent.

Ownership Structure and Board Oversight – Is it really important?

Ownership structure can have a bearing on management's risk appetite. Shareholder money might be fungible from a creditor standpoint, but the motives and passions of the man behind the dollar bill are not. Because of their different investment horizon and appetite for risk and debt, it does matter to the creditor whether the biggest shareholder is a sovereign wealth

fund, a private equity shop, a family body etc. A company with a highly fragmented shareholding is likely to have a risk profile quite dissimilar to one where there is a single large shareholder owning a large percentage of shares. Traditionally, it was held that firms with a lot of management shareholding would orient their strategy towards long term gains as opposed to short term gains. The collapse of US investment banks such as Bear Stearns and Lehman Brothers has however put paid to this theory, particularly when it is coupled with management incompetence and lack of understanding of the businesses the company was operating in.

Is there a particular ownership structure that is beneficial to creditors? Perhaps that is topic of a separate study. But family owned firms, which do not want to dilute their stake but do not have the capital to fund expansion, are likely to have a more leveraged balance sheet as they use debt (particularly bank debt) to fund expansion. However, should creditors even worry about ownership structure if they are convinced about the underlying credit story, the company's management has proven itself to be competent and one of integrity, the return on capital employed sound and the balance sheet unleveraged? We think not.

How about private equity investors who, because they have no clue how to add value to a company, load it with debt to improve return on equity? Private equity shareholders have never proved good for creditors. At best they have been neutral. Covenants that prevent loading a company with debt are the only way creditors can protect themselves from those value destroyers.

Regarding board members, it is even worth looking who the worthies are on the board, which of them are independent and not cronies of the CEO? How many board members would voice their opinion on topics of interest to creditors such as capital structure, M&A strategy, etc? How many have prevented risk management disasters by asking the right questions?

We will never know, and once a factor is an unknown, it is better not to assign importance to

it in the credit analysis process. We would look at boards members only from the point of view of conflict of interest. Likewise, board committees and their efficacy is an unknown until some disaster strikes- so there is no point assigning importance to it. Too many boards, filled with supposedly superior individuals, have proved spectacularly useless in reining in CEOs when they stepped outside the boundaries of a company's welfare.

Controlling Rights higher than Cash Flow Rights is not good

Though we would look at it from a case to case basis, we would be wary about a group of shareholders having voting rights disproportionate to their shareholdings. Such individuals have a higher tendency to roll the dice and take high risk- if it pays off, the returns are huge, if it does not, their losses are limited to their small shareholding.

Occasionally an entity holding disproportionate rights can be good for the creditors, especially if the entity is a sovereign or a sub-sovereign entity of strong standing. Consider the Volkswagen law (which might soon be struck off) which prevents any entity from acquiring more than 20% of the voting rights in Volkswagen AG. The German state of Lower Saxony owns a 20.1% in Volkswagen. It is inconceivable that the state of Lower Saxony would not come to the aid of Volkswagen in some shape or form, should it be in a financial soup and on the verge of defaulting on its loans. The same benefit does not accrue to the creditors of another car maker, Peugeot Citroen, on account of the Peugeot family holding 30.1% of the shares but having 45.1% of the voting rights. Or, from the Ford family holding a disproportionate voting share in Ford Motor Company.

Auditors

A key part of a management's tasks is appointing a credible auditor who has the scale and skills to audit the company and then communicating the implications of the audited numbers and the future prospects to all stakeholders. The firm's audit committee is responsible for

selecting, evaluating and compensating the company's auditors. It is also responsible for overseeing the audit function. A big creditor, if possible, as a part of his due diligence, should get the management of the company to arrange for a brief interaction with the partner of the audit firm responsible for the audit just like rating agencies sometimes do. Obviously there is no point discussing the audited numbers. The aim of the process is to get a quick feel of the partner, the companies and industries he is responsible for auditing, how he came to be appointed for auditing the firm and to ascertain if the audit firm has other relationships with the firm such as consulting relationships. Auditors doing consulting work for clients is not prohibited in all countries and can lead to severe conflict of interest when the audit firm treats the audit function as a loss leader. A credit analyst cannot be one who has been unexposed to the wiles of knave management and compliant auditors.

Credibility of Auditors

One cannot go by name of the audit firm auditing the books as much as by the credibility of the audit firm partner. It is possible to argue that big audit firms have the systems and processes in place which ensure greater credibility of the numbers as well as consistency of the audit process as opposed to a smaller audit firm. The evidence does not point in that direction. In 1988, Arthur Anderson resigned as auditors of Capcom, an affiliate of BCCI bank which collapsed on charges of money laundering. The auditors issued a damning report on the happenings at Capcom. Price Waterhouse, the auditors of BCCI, did not do a credible job and after many years, had to pay a big fine for its role in the episode. Obviously one cannot jump to the conclusion that Arthur Anderson had the audit systems and process in place to unravel fraud. The firm's accounting disasters such as the Waste Management episode in the 1990s severely affected its credibility. And in the audits of Enron and WorldCom, it was accused of complicity with fraud that ultimately caused the firms' demise. We would rather go by the credibility of the individual auditor. If not much can be

ascertained about that individual, one should not use the credibility of the auditor as an input for the credit analysis and place greater reliance on the firm's credit story. Merely because an auditor belonged to a big firm does not lend credibility. In fact, we actually prefer smaller firms with very credible individuals.

Conflicts of Interest

Lack of conflicts of interest of the auditors is itself a good starting point for relying on audited numbers. Of course many conflicts such as consulting assignments are not prohibited in many countries. But conflicts can come from other sources. If a single company contributes a sizeable chunk of an audit firm's revenues, the auditor would go out of his way to ensure he does not lose the client. That can lead to a lax audit without too many sharp questions. The auditors could also be friends and relatives of the management of the firm being audited. Basically, the analyst, if possible, should know the extent of damages an audit firm would suffer from losing the client. It is always more credible if the company under consideration has a policy of rotation of the auditor/audit firm.

Sources of Audit failure

Inadequate understanding of the company's industry and business model, inadequate understanding of transactions in that business, not being firm with clients, not verifying what the client says and not being sufficiently skeptical (that is also a source of credit analysis failure) are usually the honest reasons for audit failure. When the auditor is in connivance with management fraud, the audited statements are useless. In most of those cases, the credit analyst can usually detect that some hanky-panky is afoot if he has understood the company's credit story.

However, there are frauds which a credit analyst can't detect even if he has understood the company's credit story. In January 2009, Sathyam Computers, India's fourth largest software

outsourcing firm was in the dock for accounting fraud. The CEO confessed that he had indulged in fraud for five years. The company's auditors, PricewaterhouseCoopers pleaded that they had been taken for a ride. Whether the auditors were involved in the fraud or not will be clear only once the investigations are complete. For a credit analyst, the revelations were a shock. Sathyam Computers was indeed a big player in the outsourcing business. The revealed margins were not outlandish- in fact the margins were less than those of the bigger players in the industry as one would have expected. It had a healthy cash balance, as did most of the players in the industry. These cash balances were misused by the owner and CEO for his own personal investments. In his confession, the CEO said that he started the fraud off on a small scale, but the scale just got bigger. He said that the experience was like riding a tiger, from whose back it was impossible to get off. Many company managements, during the last two decades, have been riding on the back of their own personal tigers, not revealed in published financials. In the case of Sathyam, the auditors did not do the first thing auditors are supposed to do- verify the cash and bank balances, whether due to incompetence or connivance has yet to be established. But there was little a credit analyst could have done- the published numbers were in line with the company's credit story. However, in most cases, creditors should be able to spot the fact that the credit story and published financials do not hang together. That, and not reliance on Client 9 to go on a crusade against wrong doers is the right strategy for the creditor.

The Madoff Episode & Creditor Lesson: Audit Firm's Profile vis-à-vis the Audited Firm's Profile

The most important lesson that creditors can learn from the Bernard Madoff Ponzi scheme, that came to light at the end of 2008, is that to be credible, financial statements must be audited by a firm of the same profile as the firm being audited. We are not saying anything about the size of the audit firm here. A large multinational firm has to be audited by an auditor with the requisite multinational reach. A big firm has to be audited by an auditor with

the wherewithal to go into the nooks and corners of the company's different businesses. Madoff ran a multibillion dollar investment scheme. Yet, his audit firm, Frierling & Horowitz was a three person operation- two principals and a secretary. One of the principals was an 80 year old who had left the firm more than a decade back. Apparently the auditors operated out of a drab building- we don't hold that against them but a lot of commentators at that point did. More interestingly, the firm had been telling the American Institute of Certified Public Accountants (the entity that sets auditing standards for private companies) for 15 years that it does not conduct audits!

Understanding the Credit Story of Xerox would have helped uncover Audit Fraud

Between 1997 and 2000 Xerox Corporation did have an audit committee. Yet, it singularly failed to uncover fraud at the company, allegedly perpetrated by the CEO and the auditors KPMG. During those years the company showed double digit earnings growth. No body paused to understand the credit story- how was such a sales growth possible in a mature industry? No body was concerned about the burgeoning receivables. Between 1997 and 2001, the company improperly booked about \$2 billion in revenue, which had to be restated to reflect \$1.4 billion in pre-tax profits. Shareholder equity had to be reduced by \$1.3 billion. In May 2002 after everything was reported, Moody's cut the rating of the company from Ba1 to B1. The company restated the financials between 1997 and 2001. The source of the fraud was how leases were accounted for in the revenue. But the thinking analyst would have sniffed trouble without auditor help.

Text Box: The Decline and Fall of Arthur Andersen

The culture of "here and now" without worrying about future consequences that gripped the US since the early 1980s took its toll on the credibility of the accounting profession. When the tenure of a CEO in a company was getting shorter and shorter and started being

determined by the management's ability to meet quarterly earnings forecasts, the CEOs started cutting corners. The pangs of conscience, which certainly must have bothered CEOs when they started overstating earnings or assets and understating liabilities or resorting to means which produced short term earnings (or pro-forma earnings) at the cost of long term viability of the business, were gradually dulled by repeated transgressions.

The CEO's departure from the path of virtue put pressure on an auditor. Initially, it would involve the auditor permitting stretching of the truth rather than outright fraud. But just as the CEO stepped on the slippery slope, the auditors were also forced to follow suit or adopt a confrontational attitude towards the management. Adopting a confrontational attitude was risky for the partner who was in charge of the audit- not only did it risk putting off his current clients, but in a permissive atmosphere where pro-forma earnings were the only things that mattered, it would have risked annoying potential future clients. There came to exist a systemic orientation towards auditors who could pass a favorable judgment on a firm's finances without too many questions. Investors did not encourage company management to come out and state with pride that their accounting had passed the test of a strict partner in a prudent audit firm. So, they had no right to complain when the pursuit of the lowest common denominator in the audit profession had its natural outcome and skeletons started tumbling out of the cupboard.

The audit profession started having another conflict- it started getting a substantial chunk of its revenue (and the profitable bit of revenue) from rendering consulting services to the companies it audited. These services included IT consultancy, tax consultancy etc. When a client was generating high consultancy revenue, it is hard to "tut-tut" the accounting quality of the firm. In 2001, audit firm Deloitte and Touche generated 67% of its revenue from non audit services while KPMG obtained 61% of its revenues from non audit sources.

Arthur Andersen, a firm with an illustrious past was one of the “big five” accounting firms in the world until the firm was put out of business by repeated audit failures. The other members of the big five grouping included Deloitte & Touche, Ernst & Young, KPMG and PricewaterhouseCoopers. Arthur Andersen’s famous audit failures included Boston Chicken, Waste Management, Sunbeam, Global Crossing, Enron and World Com. But was the firm the lone black sheep in an environment of spotless virtue?

As we had argued, audit standards started getting lax from the 1980s due to the various reasons. In March 1994, Deloitte& Touche agreed to pay \$312 million to settle \$1.8 billion of lawsuits bought forth by the US bank regulators on account of improper audits of savings and loan associations that went bust. The flaws were not limited to the US but had spread to Europe. A predecessor to Ernst & Young reached an agreement for an out of court settlement with Ireland’s largest banking group AIB. The audit failure had caused AIB to overpay for an insurance company acquisition. The audit firm had to shell out \$118 million. Price Waterhouse, the predecessor of PricewaterhouseCoopers was involved in improper audits of the fraudulent bank BCCI.

So, was Arthur Andersen’s audit record more unflattering than those of other auditors? We do not think so. It was just that the company got involved in a lot of high profile cases in a narrow period between 1996 and 2001. And after Andersen was put out of business, the big five turned into the big four, thus reducing the likelihood that regulators will ever put one of those firms out of business. That further vitiates the accounting quality of multinational companies audited by those audit firms.

Analysts should remember that they are more hurt, not by audit frauds as much as by stretching of the truth. Stretching the truth was what enabled firms like Lehman and other banks to operate. The report on Lehman Brothers’ fall by its court- appointed bankruptcy examiner criticized auditors Ernst & Young (E&Y) for failing to “question and challenge

improper or inadequate disclosures”. Various accounting gimmicks, which were hidden from investors, were most probably known to the auditors. E&Y is likely to face the music in the form of malpractice lawsuits. Obviously the \$31 million annual audit fee that the firm got from Lehman Brothers meant that they did not want the show to stop. But some positive changes have happened from the Sarbanes Oxley Act, emulated in some shape or form in various countries. The moral of the Andersen story for the credit analyst is that the moment he sees audited numbers not congruent with the credit story of a firm, he should up his risk seeking periscope to probe further.

Covenants- The only Leeway a Creditor has in a Going Concern

Lenders have loan covenants to protect their loan and the value of the collateral for the loan. Covenants are contractual clauses. Once a loan is given, the only control a creditor can exercise, till the bankruptcy of the borrower, is through covenants. If covenants are breached, lenders can demand repayment of a loan or seek control over the management of the company. Without covenants, management can go berserk pursuing shareholder goals (and their personal financial goals, if a considerable chunk of their compensation is in the form of stock options). Given the importance of covenants, notions like covenant-lite loans (such as were prevalent in the days of easy credit between 2004 and 2006) never made sense. Why creditors, who do not enjoy the upside potential of a venture, permitted management to take horrendous risk through relaxation of covenants can only be explained in terms of employees of creditor organizations pursuing their own short term personal goals. The weaker the financial strength of the company under consideration, the greater the need to keep the company management focused on operations and hence the need to have stronger covenants.

When a creditor is also advising a company on an M&A transaction, the fees from the M&A advisory business can blind senior management of the financing organization into looking at

the gains from today's fees and not worry about tomorrow's defaults. Perhaps the management of such organizations believed that the loan was only for a short period before the borrower would refinance the facility or before he could offload the loan on to a gullible third party. As we have said in an earlier chapter, using financing as a sweetener for procuring fee based mandates is always a recipe for disaster. And hoping to offload loans before disaster strikes is tempting fate. The covenant- lite loans of the credit bubble ended badly in 2008, and they will always end badly when the next credit fuelled bubble takes place. When covenant- lite loans become the industry norm during the dark days of a credit mania, the only sensible course open to creditors who want to do the right thing for their shareholders is to sit tight and do nothing. During the credit mania, the only possible course for a creditor is to buy cheap CDS protection on really risky credits and wait for the plot to unravel. Even doing nothing is preferable, though it would hurt short term returns, bringing considerable pressure on the management of the credit institution from short sighted shareholders.

Sometimes, on account of weakening financials, borrowers can get precariously close to breaching covenants. They might come back to the lender with proposals for renegotiating covenants. Borrowers should be wary of granting such prayers. Unless, after a thorough analysis, the creditor really is convinced that short term forbearance would help the borrower, it is no point delaying the inevitable and reducing recoveries. But as a matter of principle, we doubt the utility of earnings based covenants such as maximum permitted debt to EBITDA etc. Earnings based covenants can always be manipulated. Also, just because the company had a couple of bad quarters, a creditor should not panic if the underlying credit story is sound. For good companies which are not leveraged to the hilt, such covenants are silly. And for leveraged by products of silly M&A transactions, the covenant would be no real help- when the covenant is breached, lenders usually grant forbearance, sometimes in

return for a higher rate of interest- which is more likely than not to push the company into deeper straits.

Covenants, on the other hand, should not come in the way of a company executing its business plan. Otherwise the creditor would be hurting his own long term interests. A lot of thought must go into designing the covenants- it should not be there merely because they are standard conditions, or the way things were always done. Any covenant which does not serve any purpose must go as it is a needless distraction. Also, while designing covenants, the vagaries of the business cycles and the seasonal variations of the business should be factored in. For instance, positive cash flow covenants, which require companies to maintain positive cash flow on a quarterly basis, make no sense for an industry where the working capital cycle is more than 90 days. Likewise, we are not big fans of “key man life insurance covenants”. A creditor has no business lending to a business whose cash flows are reliant on a single individual or group of individuals- no matter how talented. The benefits of the presence of such individuals flow to shareholders- so creditors should not even be considering that in their analysis.

Covenant design also involves not providing an incentive to a borrower to manipulate his financials to meet some artificial financial ratio. As mentioned earlier, structuring covenants are not entirely in the lender’s hands-covenants acceptable to the borrower are a function of market conditions. In periods of abundant credit, when covenants tend to be feeble, the only choice available to the lender is to sit out and wait for the inevitable return of sanity.

Covenant-lite loans would loose more value than loans with strong covenants during periods of credit tightening.

Covenants, in summary, place restrictions on the company’s ability to indulge in debt financed acquisitions and capital expenditure through limits on gearing (debt to equity ratio). Preferred stock and other debt like instruments must be considered as debt. Covenants also

place restrictions on contracting debt like liabilities such as leases. They restrict cash outgoes to shareholders (dividend distribution covenants) - either from asset sale, or beyond certain levels from operating profit. Additionally, liens must not be created in favor of other parties without creditor approval as that can reduce creditor recoveries in case the loan goes sour.

Cash flows generated from asset sales should be used for debt servicing- as any transfer of cash from the asset sales to shareholders substantially reduces the credit strength of a borrower. Covenants can also place restrictions on change of management or control without creditor approval. This could be achieved with the loan having a “change of control put”, which forces the borrower to repay the loan before a change of control is permitted.

Minimum tangible net worth covenants increase the commitment of shareholders to the success of the firm as well as ensures adequate cushion for creditors. Finally, coverage covenants (ratio of cash flow available for debt servicing to cash required for debt servicing) ensure that management does not contract too much short dated liabilities. Liquidity covenants require minimum working capital ratios.

Covenants serve to alert creditors on the financial state of a borrower. Of course, an alert creditor who has done his job well should not be in a position where a drop in earnings acts as a signaling mechanism. The central requirement of good covenants is to keep management to the straight and narrow. Those covenants make sense while earnings based ones do not. Earnings based covenants might induce a company to do transactions like sale and lease back which might not make sense and which might harm the long term financial health of the company. It is better for a borrower to go for an asset backed loan facility rather than, in times of economic stress, accept stringent earnings based covenants which might come back to haunt the company.

Covenants and Preservation of Group Value

Covenants, to be effective, must be designed to function on a consolidated group basis and not on a standalone basis. Else, cash flow and value might seep out, reducing creditor protection. Value at the borrower level can be reduced through cash flows and guarantees to the holding company, domestic subsidiaries and foreign subsidiaries. Debt contracted at the subsidiary level or guarantees to subsidiaries effectively increase the indebtedness of the borrower. Likewise transfer of assets among group companies have to be restricted.

Additionally, dividend payouts to the holding company must be subject to conditions. As long as cash flow happens from the shareholders to any group entity, it is alright for creditors. Cash flows and contingent liabilities in the other direction must be subject to clear terms and conditions. The “Designation of restricted and unrestricted subsidiaries” covenant regulates how a borrower can designate subsidiaries as restricted (and hence subject to restrictions) or unrestricted from incurrence of debt and sale of assets viewpoint. So, debt covenants should not only limit the amount of debt a company can incur, but also should place limits on the amounts that subsidiaries can borrow.

Affirmative and Negative Covenants

Affirmative covenants prescribe tasks a borrower must undertake during the tenure of a loan. These could include compliance with laws, application of loan proceeds to specified purpose, preservation of corporate existence, rights of inspection, maintenance of insurance, maintenance of properties, maintenance of books of accounts etc. A borrower might be asked to maintain “key man” life insurance on certain management positions. All taxes must be paid and kept current. Quarterly or monthly financial statement must be submitted to the lender as must accounts payable and accounts receivable reports (to working capital lenders). All shareholder loans to a business must be subordinate to the bank’s loan. These are the standard covenants, and as we had discussed earlier, not all of them make sense.

Negative Covenants are usually more significant as they prevent the management from taking measures that are shareholder friendly at the cost of increased risk to the creditors. These include restrictions on excessive share buy back, limit on dividend payouts, restrictions on M&A without creditor approval, limitation on total indebtedness, restrictions on change of accounting practices without permission (else prevention of covenant breach will be through accounting tricks), rules on transactions with subsidiaries, limits on sale of assets and subsidiaries, restrictions on pledges and mortgages of assets, restrictions on sale and leaseback etc. Negative pledges are more valuable to the unsecured creditor as he does not have dedicated assets to fall back on if debt servicing is not done on a timely basis.

Limitations on liens on assets ensure that the company does not get excessively leveraged. One might argue that a second lien loan should not worry a creditor because the first lien lender stands ahead in the queue in the recovery process post a default, but a company with excessive second lien loans is in the same position as a homeowner who took a second lien loan for buying a home without any equity. In the case of companies which have very little equity, the shareholders have such little downside risk and lots of upside potential that they would be tempted to gamble by taking on ultra high risk activities. There could also be covenants on what investments are permitted and to what amounts. The aim is to ensure that there is no investment in high risk assets which while enhancing the upside potential of earnings, subject creditors to disproportionately high risk. There might also be the need to cap loans and advances to subsidiaries.

When a covenant is breached, lenders usually provide a cure period by which the borrower must rectify the breach. Negative covenants usually do not have cure periods. Cure periods for affirmative covenants can usually be as long as a month. Excessively long cure periods removes the potency of the covenants and leaves the lender to hold the baby. Of course, in times of economic stress, lenders tend to be less generous in their curing periods- they would

rather put a company that is struggling quickly into default and focus on recoveries rather than delay such actions and wait to see their loans lose further in value.

Another type of negative covenant is the so called “business line limitation covenant” which limits the line of business that a borrower can operate in. This prevents unrelated diversifications, which cause the creditor to take on equity risk beyond levels he had planned for.

Incurrence based versus Maintenance based Financial Covenants

Financial covenants are the most important covenants. Financial covenants establish broad parameters within which the borrower can operate so that he does not weaken credit protection metrics. These include not permitting the borrower to borrow beyond a certain times his equity and earnings. There could also be the requirement of preservation of net worth and coverage of current liabilities with current assets. Financial covenants are meant to give an early warning sign to the lender of impending trouble. The borrower must also report to the lender his updated financials so that he can monitor compliance with the covenants.

Once a loan is given, maintenance covenants are measured, usually at the end of each quarter, during the term of the facility. Maintenance include maintenance of certain leverage ratios, capital structure etc. Maintenance covenants provide protection to credit investors against event risk and the management has to weigh the implications of its actions on account of the possibility of breach of covenants. Do not rely on maintenance covenants in other credit facilities- those lenders might choose to waive off breaches when they occur for various reasons. Most common maintenance covenants are the interest cover test and the leverage test (Debt to EBITDA). In covenants that require asset sales to be used for repaying debt, there should be a ratchet down clause to prevent the company from re-borrowing to replace

the repaid loans. Otherwise debt levels stay the same while the asset base protection available to the creditor comes down.

Incurrence covenants are measured on the occurrence of some event, like the incurrence of additional debt etc. In a deteriorating economic environment, a company is unlikely to incur more debt unless it has got into a liquidity trap due to sharp reduction in value of inventory, non collection of receivables etc. In such an environment, the borrowing is more likely to be for supplanting working capital problems than for participating in debt financed acquisitions or capital expenditure. Hence usually, they are not as good indicators of trouble ahead as maintenance covenants. However they have a valuable purpose during good times because they prevent a company from getting loaded with debt which proves onerous when the tide turns. Incurrence covenants are common to high-yield indentures because the perils of increased debt are higher for high yield issuers.

Breaching covenants of critical revolving credit facilities which provide working capital financing can be dangerous as they can put the whole operation of a company at peril. The lack of access to liquidity puts the company on a downward spiral

Covenants for Bank Capital Instruments

To qualify as bank capital instruments, the hybrid debt instruments of banks and insurance companies must not contain any terms, covenants or restrictions that could inhibit the issuer's ability to delay coupon payments in the event of financial difficulty, or restrict the regulator's ability to issue injunctions to conserve capital by not making coupon payments. There must also be no cross-default clauses in the documentation of such debt instruments of the issuer, linking the issuer's obligations under the instrument to default to another party. In effect, debt capital instruments of banks are covenant-lite debt instruments.

Restrictions on use of Derivatives- A much needed Financial Covenant

Managements have a vested interest in gambling with derivative instruments when all is not well on the operations side in the hope that operational deficiencies can be masked by gains from derivative trading. Companies need to use derivatives for hedging various risks. Hence, blanket ban on usage of derivatives will put a company at risk. Covenants need to specify the type of derivatives permitted (it is usually sensible to discourage the use of option like instruments) and the risks that can be hedged. Irrespective of what managements say about customized derivative contracts and tailor made solutions, exchange traded derivatives should be the only derivatives that creditors should permit. OTC derivatives, particularly the more exotic stuff should be the toys of dice rollers such as hedge funds.

Covenants to keep Managements honest

Covenants must ensure that managements, which have substantial share options, do not indulge in short term behavior which drives up stock prices in the short run but hurt the creditors in the long run. Managements must also be prevented from excessive distributions, whether in the form of cash, securities which claim cash or share buybacks. Such covenants are necessary to ensure that there are no avoidable disputes between shareholders and creditors. The nature of “change of control” covenants is very much a function of the company and industry involved. Rather than formula based change of control covenants, a common sense approach is recommended wherein the creditor permits actions as long as they do not impinge on credit quality. Managements which have golden parachutes in place whenever an M&A transaction happens must be kept within the narrow path by putting in place clauses that restrict mergers without creditor permission. Similarly, sale of assets, particularly the sale of assets followed by high dividend payouts must be prevented. Assets sales should be used to pay down debt. Sale and lease back transactions have to be discouraged because it transfers assets available to the current unsecured lenders to the new secured lender (the counterparty in the sale and leaseback transaction).

Change of control covenants need to specify which entities are permitted to take control. Change of control covenant might be triggered upon sale, lease or transfer of substantial amount of assets, acquisition of more than 50% of voting rights by an entity other than permitted holders, or if after an IPO, the continuing directors cease to be a majority on the board etc.

Loan Commitments for Acquisition Financing

Lenders need to give commitment letters to borrowers for transactions such as acquisition financing. We have been quite circumspect about acquisition financing. However, a blanket avoidance of such financing makes no sense for an entity in the lending business. Acquisition financing, despite the fact that most acquisitions are failures, is a fact of life. The lender's role is to ensure that as much of the risks of the transaction are transferred to the shareholders of the acquirer. If an acquisition is made at the middle of an equity bubble, the lender should ensure that the debt equity ratio of the financing is substantially loaded towards equity. The lender to an acquisition bridge financing should analyze the transaction as if he were lending for a long tenure. The probability that a transaction might not be able to refinance is not small. Unfortunately, when an equity bubble is underway, a credit bubble goes hand in hand. In fact, chances are the credit bubble caused the equity bubble. In those circumstances, lenders usually have low bargaining power on how an acquisition should be structured. The only course for the lender, if he does not want to take substantial write downs a few years down the line, is to lend only to the few deals that make sense and let the rest go. Yes, that would result in loss of market share and prominence during the bubble years. But the lender can recover market share and some more once the bubble bursts and the castles come crashing down. Wells Fargo lost substantial market share in the residential mortgage financing market when it chose to keep away from the market rather than participate in foolish financing structures that did not make sense. It ceded market share in dud loans to other lenders, who took write downs a few years down the line. There is simply no alternative to saying no to egregious lending practices, if the loan officer wants to do the right thing by his employer.

One of the most dangerous practices that came into existence during the credit mania of 2006 was the weakened conditions of the commitment letters given by lenders for acquisition financing. The conditions under which lenders could back out of transactions were substantially diluted. The covenants of the funding were also terrible. And the pricing of funding made sense only in a dopamine-induced dream.

Market out clause is a clause in a lending/commitment agreement that permit the lender to cancel an agreement for specific reasons without a penalty. Again, as with material adverse change, backing out of a commitment for conditions not related to borrower fraud, does not seem to do justice to the integrity of the lending function.

We don't think highly of the material adverse change clause, if the adverse change refers to external business or market conditions. All loans have to be given after having been stress tested for material adverse changes in the economic conditions. Merely because the adverse change happened sooner than later does not seem to be a good enough excuse. Nor is material adverse change of the borrower an acceptable excuse to back out- the credit approval should have been based on the analysis that the borrower would be able to service the loans even under adverse conditions. The only material adverse change a lender of integrity would invoke is if there had been a fraud at the borrower's end or if there has been any misrepresentation by the borrower. So dilution of the material adverse change clause during the credit mania was not worrisome if the lender had done an honest credit analysis.

Market flex provisions provide lenders with the option to increase the pricing of loans later "if the lender determines that such changes are advisable to insure a successful syndication of the loan facilities". This makes sense to the extent that other lenders might not be willing to participate in the syndication at lower rates. During the bubble years, this variation permitted in the loan pricing was substantially diluted.

Also during the bubble years the commitment duration of acquisition financing commitments kept getting longer. Historically most commitment letters were valid for about 6 months. Again, we are sanguine about the dilution of this clause. Just as in the material adverse change clause, a creditor who has done an honest job of his analysis should not be too worried. True, the lender has given a valuable option to the potential borrower- the best course for the lender would be to bargain for a higher fee.

Covenant-lite Loans benefit None

We would define a covenant- lite loan as S&P does- loans with no maintenance financial covenants such as maximum leverage, minimum fixed charge coverage ratio and total debt limitations (though we are a bit dubious on the earnings driven Debt to EBITDA covenant). It is accepted wisdom that covenant-lite loans are beneficial to the borrower. While it makes sense for a borrower to ask for covenant lite loans during credit excesses, the borrowers would do well to have a plan in mind to satisfy stringent covenants. What if, when the loans have to be refinanced, the market conditions have tightened requiring the satisfaction of stringent covenants? If the borrower had been disciplined all along, demands for stringent covenants by the lender would not impact the company in a substantial way. So the covenant- lite norms should be used by a borrower only for providing maximum flexibility- not as an encouragement for loose behavior.

And for a lender, covenant-lite never makes sense. It is better for a lender to sit out such periods of excesses, which also happen to be periods when risk is not correctly estimated. Secured facilities also might not be as well collateralized as perceived because in a bubble environment asset prices are overstated. Covenant- lite loans delay the lender's ability to take corrective action, which reduces recovery if the loan does turn turtle. However, it must be emphasized that covenants, whether heavy or lite, can provide only limited protection from bad credit decisions, which is usually the case in leveraged loans for buyouts in an easy credit environment. Covenant-lite and leveraged loans go hand in hand because both are products of easy credit conditions.

Key Takeaways from this Chapter

Creditors, in times of excessive optimism, do not pay as much attention to management quality as they should. In bad times, bad management is weeded out by the companies themselves. But it is in good times that loans are made which come back to haunt the lender. Loans made during bad times tend to perform well on account of disciplined loan underwriting as well as due to the fact that if the company is doing well during bad times, its earnings can only improve once the economy turns for the better.

Ideally one likes to see executives who have grown with the company run the company. Managers parachuted from outside the company have succeeded in the past but the odds are stacked against that outcome on account of lack of understanding of the company, its business model and its culture. Such managers tend to be of the “big picture type” with no time for details. Shareholders might want to change management in the hope that one of them will deliver the outsized returns they seek. This betting on the jockey might make sense for shareholders but creditors live or perish based on the horse’s ability to run irrespective of who the jockey is.

Management being upright and forthright is of foremost importance. Managements lacking integrity are likely to indulge in behavior which boosts short term earnings at the cost of weakening the balance sheet and weakening the credit story. Aggressive accounting is a clear indicator of lack of integrity. Integrity is particularly important in the financial services companies such as banks, non bank finance companies and insurance companies. In these industries, it is possible to hide bad news for a substantial period of time through overvaluation of assets or undervaluation of liabilities. Concomitant with integrity is competence. There is no way a creditor can assess if a new executive is competent or not other than looking at his past. But in business, past success in a different company or industry does not guarantee success in future. Past success might have been in companies

with strong culture, systems and processes which limit the damage potential of a single individual.

Excessively shareholder friendly managements can put creditors in a soup. Managers who frequently buy back their own shares or buy other companies with debt are a menace.

Managers who display hubris by getting into battles with regulators and governments are no good for any stakeholder. Hubris is what causes managers to overpay for assets and causes them to hog the limelight by being visible frequently in public for all the wrong reasons.

Clever by half management also tend to be unfriendly to creditor interests. These are people who resort to derivative based strategies for securing excess returns. Initially, when some money is made, the managers think that anything they touch would turn into gold and try strategies with even more leverage until disaster strikes.

You don't want to be associated with management which gets into disputes with auditors.

One must look at the reputation of the audit partner who led the audit. Auditors who are disproportionately small compared to the companies they audit usually means that the company does not want an honest audit done. Auditors' conflicts of interest are increasingly illegal in most dominions- but one should check if there are indirect conflicts of interest.

Covenants help creditors ensure that managements do not take too much risk, either on the business side through actions such as imprudent acquisitions, unrelated diversifications, asset sales etc or on the financing side such as through share buy backs, excessive dividend payout etc. Covenants are the only leeway a creditor has after loan draw down by the borrower.

Earnings based covenants are not useful as these force borrowers to try their hand at manipulating the earnings numbers so that covenants are not breached. Covenant design should be specific to a borrower and application of mind is required on what covenants are necessary for a particular borrower and what covenants act as hindrances to the company executing its business plans.

Incurrence covenants are measured on the occurrence of an event such as contracting more debt and are designed to prevent a company from getting excessively leveraged.

Maintenance based covenants require management to operate in such a way so as to not breach some financial ratios such as the interest coverage ratio etc. Affirmative covenants prescribe tasks for the borrower during the life of a loan such as reporting of financials to the lender. Negative covenants are required to ensure that managements do not take excessively shareholder friendly measures such as share buy backs, high dividend payouts etc without lender permission. We recommend that lenders put in their loan agreements a “derivatives covenant”, that clearly prescribe the purposes for which derivatives can be purchased and the instruments that can be used.

Chapter 9 Financial Projections and gazing at the Future

The process described in the previous chapters would have helped an analyst acquire a thorough understanding of a company/entity from a credit risk perspective. While understanding the past is crucial, what the analyst really needs to know is if he has adequate operating income and balance sheet visibility for the future period during which a debt instrument would be outstanding.

Creating financial projections of an entity is inherently an imprecise process. All one can do is to make it less imprecise through a thorough understanding of the company's credit story. For many companies, an investor can be so unconvinced about the credit story, that he can reject the prospect of credit investments even without projecting the company's financials.

During the life of a prospective credit instrument if an investor can't create a financial projection within reasonable error limits and yet entertains thoughts of lending to the company, he might have accidentally ventured into venture financing. It must be remembered that projections cannot happen in a vacuum- the company functions in the broader context of a society's consolidated financials- sales growth, operating margins all depend on that.

The first step in creating a financial projection is interaction with management to get the company's own financial projections. Obviously, one can't use the management's projections on the income statement side, but an analyst can educate himself on the management's capital expenditure plans, its dividend strategy and its financing strategy. Also, interaction with the management can throw light on the company's M&A strategy and share buyback plans.

Next, one needs to look at some basic financial ratios of the past performance of the company. For manufacturing companies this could be operating margins, return on capital

employed, days of working capital etc. For financing institutions it could be gross spreads, expense ratio, non performing asset ratio etc. Calculating reams of ratios is a pointless waste of time (in the run up to the 2007 credit crisis, there was a fundamental misunderstanding in the credit markets- the rating agencies thought their role was to calculate a zillion financial ratios- and to invent more hideous and meaningless ones. The poor investor of course thought he was paying, through the issuer, for an analytical opinion). Before calculating the ratios, any adjustment to the financial statements for overstatement of earnings, understatement of costs and liabilities must be made. Else the ratio calculation is meaningless. The reason for calculating the ratios is to compare the ratios calculated from the projected numbers with the ratios from past performance. If there is a fundamental disconnect between the projected ratios and the past ratios, and some “turnaround” situations are involved, a creditor should not be getting involved unless he has a deep understanding of the credit story and how it will evolve.

Ultimately, the point of doing projections is to assess the margin for error if things go awry. By creating the projections, not mechanically, but in a step by step fashion as discussed in this chapter, the credit analyst’s mind would get more focused on the key risks in lending to a company. And preferably, there is an intensive process of questioning and debating within the credit team when the projections are prepared- it is very easy for a single individual working solo on an investment case to go astray unless subjected to rigorous questioning. Of course, detailed questions are expected and required at credit committee meetings. That is because, at the fundamental level, it is possible to get the credit story completely wrong and rigorous debating helps to focus an analyst’s mind. It is also preferable that people who have never met the management participate in the questioning- management meetings in comfortable environs can lull an analyst into a false sense of security. The role of the credit committee is to focus the credit analyst’s mind- not to reinforce groupthink at any level.

Preparation for Management Interaction

Management interaction time is not always available to a credit investor. Only big investors and rating agencies have such access in the case of big companies. Because of this the rating agency analysts, who might not know how to cook an investment thesis, have no excuse for not knowing what is cooking. Small company managements, however, would be more open to presenting their point of view to even small investors. The only other available opportunity for management interaction is at conference calls after earnings releases.

Obviously, in such a forum one cannot be too frank unless one is comfortable with annoying the company's executives. Also, in such a forum, due to paucity of time, one may not get to ask more than one question- so one can only ask questions on the most pressing issue. Small investors can also get a fair interaction with management if they are a part of a big syndicated loan facility.

As a general rule, a company which is not using every available opportunity to communicate with creditors will probably not be a good investment, either in terms of pricing of a credit facility or in terms of covenants the company would be willing to sign on to.

A detailed preparation needs to be done before management interaction so as to ensure that as much useful information as possible can be gleaned about the company and about management risk appetite. The following items need to be looked at before management interaction:

- Has there been a history of management acting against creditor interests such as debt financed M&A etc
- Has the company hedged financial risks such as currency, interest rate and credit?
Does the company use option like instrument for hedging or forward like instruments?

- What are the details of the company's P&C insurance policies that are available to the public?
- Broad financial details and publicly available information on competitor's business strategies
- What are the covenants in current outstanding bonds which serve to keep the management action within a certain course? The maturity of those bonds also needs to be noted.
- Have there been complaints against the management on issues of integrity such as accounting quality etc?
- What is the compensation structure for top management?

What to get from Management Interaction

In case one gets a close interaction with management, the time should be fruitfully spent in getting as much information on management strategy as possible so as to reduce the uncertainty embedded in the financial projections. When the comfort level increases, one needs slightly lesser margin for error.

Discussions with management should focus on management strategy- particularly, the company's growth strategy. Is the company going to rely on organic growth? Is it going to procure growth through acquisitions? If the company plans to grow organically, what are its capital expenditure plans? How would the capital expenditure be funded? Likewise, is there a funding strategy for acquisitions?

On the capital structure front, an important input to have from the management is its dividend policy. Of course, it must be kept in mind that dividend policy can change overnight if the company is acquired by another entity. In that situation, debt covenants are the only guardians that can prevent the pillaging of a company by locusts. As an extension, the

management's target debt equity ratio should be gleaned. Are any share buybacks being contemplated? If yes, what is the quanta of the buyback and the period over which the buybacks would occur?

The company's philosophy on risk management could also be discussed. Yes, the analyst has the company's past philosophy- but the analyst needs to confirm that the future course of action would be in the same direction, if all was well in the past. In case things did not go well in the past, one needs more than pious statements- one needs evidence of business processes being corrected.

A quick discussion with the management on where it visualizes the business to go over the next few years could prove very insightful. How does the management see competition developing in this sector? What impact could that have on margins? Are there going to be regulatory changes? Could international trade agreements impact the company? Obviously, most of these things should already be known to the analyst before he steps inside the meeting- it merely provides him an opportunity to bounce those thoughts and also provides management a chance to refute any wrong thesis that the analyst might have formulated.

Looking at the future through the Kaleidoscope of the past: financial Ratios

Alert readers would have noticed that through out this book, we have paid negligible attention to financial ratios. That is because calculating a zillion ratios is no substitute for sound analysis and a sounder understanding of the credit story. More time may fruitfully be spent looking at the quality of the underlying financials and making adjustments to the earnings for potential overstatement and at costs and liabilities for potential understatement. However, this does not mean one should avoid calculating financial ratios. Financial ratios present a good summary of what happened in the past after you have made the requisite adjustments to the numbers before calculating the ratios. And when one calculates the same

ratios after doing the projections, it helps to quickly compare the expected course of the future with the past. If the future seems far rosier than the past, there needs to be a sound explanation.

Many analysts create financial projections by assuming that the historical ratios such as operating margins etc would be preserved in future. This defeats the very purpose of projections, which is to create the projections from scratch from the credit story and then comparing the result with the past.

What are the relevant ratios one needs to look at? The ratio analysis process should begin with looking at the historical operating margins for a few years into the past. There is no good or bad operating margin- only trends in operating margin. Wal-Mart generates healthy RoCE on thin operating margins while companies have gone bust despite having healthy operating margins because of inefficiency of capital usage. Trends in operating margins should be explainable by the credit story. In fact, an analyst should not be proceeding further without having a clear explanation on the trends in operating margins.

The next important ratio is Return on Capital Employed (RoCE). A single year RoCE does not mean much because sudden change in the operating economic environment might cause single year returns to go out of whack with trends. But over a few years, the RoCE must be much higher than the weighted average cost of capital. Another reason RoCE must be looked at over a few years is that a single year's RoCE might be manipulated by bloating earnings through questionable sales through creation of receivables of questionable quality or through financial engineering with inventory figures.

Debt Equity ratio calculated after correct valuation of assets is an important indicator of a management's risk appetite. An increasing debt equity ratio could also imply an inability to generate operational cash flows, which requires an ever higher amount of short term funds for

working capital financing. But this ratio is useless if assets and hence equity (assets minus debt) are valued incorrectly. Adverse change in Debt Equity ratio could be a part of management strategy which would imply higher risk for creditors

It is necessary to calculate the Return on Equity (RoE) to grasp the trends in shareholder returns. One might wonder why that is relevant to a creditor. If RoE numbers stay sub-par for too long, there might be pressure on management from the shareholders to pep up performance, even at the cost of assuming higher risk. Hence, sub-par RoEs are not good for creditors too. One strategy management might employ for improving RoE is to employ even more debt.

Working capital ratios in terms of days of inventory, receivables and payables, as calculated in Chapter 5 are useful, again from the point of assessing trends rather than absolute numbers. A trend of longer net working capital conversion cycle is obviously not a happy state because the firm might have to employ higher and higher short term debt to fund the working capital gap.

In the case of financing institutions, the analyst should calculate the following: $\text{Net Interest income} / \text{Average Total Assets}$, $\text{Expenses} / \text{Average Total Assets}$, $\text{NPAs} / \text{Total Assets}$. The ratio $(\text{Net interest} - \text{expenses} - \text{credit costs}) / \text{average total assets}$ indicates to the creditor the margin available should default rates go up. Just like in the case of manufacturing firms, one would calculate Debt Equity ratio and that is preferable to calculating the capital adequacy ratio.

The capital adequacy ratio depends to an extent on regulatory whims on how risk weights are assigned. Looking at hybrid capital ratios or Tier II capital ratios, even if you are an investor in tier II debt, does not tell you anything useful or new. Liquidity ratios calculated by analysts are also pointless and not real indicators of liquidity risk as discussed in Chapter 4. It is pointless to calculate ratios based on number of days delay in debt servicing such as 90

days past due and 180 days past due. Any delay beyond a few days is a pointer to credit stress at the borrower's end.

A popular ratio is the Debt to EBITDA ratio which is also referred to as the leverage ratio. This ratio conveys absolutely nothing new. Sure, increase in Debt to EBITDA is not a happy happening, but just because Debt to EBITDA went down, you can't claim all is hunky dory. Perhaps the decreased EBITDA was accompanied by a longer working capital cycle. Perhaps it was achieved through creation of receivables of poor credit quality. And a credit analyst has to be wary of using numbers, ratios, facts, theories or techniques which do not point unreservedly in one direction- that of deteriorating/improving credit quality. Since Debt to EBITDA ratio is so misleading, we strongly recommend not calculating it as opposed to the other ratios which analysts calculate and are harmless diversions, and occasionally even diverting, entertaining and amusing.

Spreadsheet Tricks to avoid

The abuse of spreadsheet usage has rendered a lot of financial projections useless. We are not Luddites who are against spreadsheets- we merely opine that many of the productivity improvement tools in a spreadsheet do not lead to productivity increase in the case of financial analysis. That is because sensible credit analysis is not readily predisposed to "drag and drop". Alas each cell in the assumption sheet has to be entered by hand from the credit story. For instance, if you are planning to project the company's revenues between 2010 and 2012, it can't be done by assuming a certain growth in revenues to 2009 sales and dragging it across as the growth rates for 2011 and 2012. Also, you just can project revenue growth – you have to separately model number of unit of sales and price/unit- the dynamics of both can differ. For instance, in 2009, all the commodity companies reported fall in the number of tones of minerals they shipped as well as, for sales not covered by long term supply contracts, the unit prices. Likewise, a drag and drop approach cannot be used for

costs, debt/equity ratio (management might have different plans or financing markets might recommend one mode of financing as opposed to another). So, for the credit analyst to be in complete control of the financial projection process, the assumption sheet will have to be filled cell by cell.

No Visual Basic

Many analysts indulge in another layer of needless excess through usage of Visual Basic based programs for creating financial projections. The aim is so automate the process of running scenarios and even try to create distributions of credit metrics. Trying to create a distribution is a meaningless exercise which might divert the analyst's attention from core essentials. Also to be eschewed are financial software which create projections. What might appear as a productivity enhancing device might actually be the creation of a lot of noise in the credit analysis process, masquerading as information. Using any device for financial analysis in the hope that it will act as a substitute for organized thought is forlorn.

Where should the assumptions for Projections come from?

The next question is where should the inputs for the financial projections come from? A popular method used by analysts is to take the projections from the management as the base case and then run a pessimistic scenario based on lower sales/operating margins. Since this process does not have the merit of use of logic or first principles, one cannot recommend such an approach.

The base case scenario of sales and cost projections must come from the company's credit story- what is happening to the SDR of the country, what is the impact of that on the company's industry, the capacity expansion by existing and new players, the likely splintering of supply, what would be the growth in input costs (you can't just assume a particular growth rate to the all the costs- each cost such as raw material costs and labor cost have their own

dynamics) etc. For the balance sheet projections, considering the inputs of management on targeted debt equity, planned dividends etc is the sensible approach. Since management policy is the biggest driver of those parameters, it makes sense to consider those for the base case scenario. Likewise, capital expenditure is driven by management strategy- hence management projection should be used.

What are the inputs for the stressed case scenario? Obviously the optimistic scenario is irrelevant for creditors. The stress scenario is considering if the balance sheet has enough flexibility to weather a sharp drop in sales. Even the very best of companies can make operating losses when demand falls over a cliff as happened in the last quarter of 2008. You just cannot rely on operating cash flows to be the primary source of repaying debt under all operating conditions (for any period longer than a year, operating cash flow should be the primary means to service debt). The question is can the balance sheet support high cost debt which might have to be raised under stress conditions. In the worst case scenario, inputs for debt/equity ratio etc should come from the maximum permitted values of such ratios in loan covenants. In the case of costs under the worst case scenario, one must consider how low costs can be cut for a particular level of sales without hurting the long term interests of the company. The fall in the level of sales in the first quarter of 2009, for most industries, could serve as the benchmark for the worst case sales scenario.

Time Frame to be considered in Projection

For what time period should the financial projection be created? Obviously the further one goes into the future, the greater are the uncertainties. Rather than asking for what period one should create projections, the more pertinent question is for what period one should lend.

One cannot lend for periods longer than one has visibility- and the visibility will get more and foggy as the SDR gets higher and higher. When consolidated debt of the society is low, one can lend for as long as one has a reasonable visibility of earnings- how long it would take for

disruptive technologies, if any to rear their head and impact the company's earnings. So, when one is prepared to lend to a company for a particular period, one should also be able to do the financial projections for that period.

Income Statement and Balance Sheet Projections cannot be done independently

We have seen financial projections where the income statement and balance sheet projections are practically unconnected except through retained earnings. From these two projected statements, the analyst would derive the cash flow statement. Finally, the effort is topped off by calculating various ratios, derived from the income statement, the balance sheet and the cash flow statement.

We would not do our projections based on an assumed operating margin- the business might not be able to pass its costs to the end consumer at all points in the business cycle. Revenues and costs should be modeled separately, as the relationship between revenues and costs can change. Only when there is a contractual relationship between revenues and costs, revenues and costs can be modeled together.

Revenue Projection

Revenue projection has to be done separately for each business segment the company operates in. Having a common growth/degrowth rate of revenue mocks the notion of projections. Within each business segment, volume of business transacted (whether it is the tones of copper sold or the amount of insurance exposure) and unit price realized (the sale price of a tone of copper or the amount of premium charged per million dollar of property insured) need to be modeled separately. Insurance companies can have higher top line in a particular year by dropping unit premium charge, thus attracting new customers. Those new customers are ticking time bombs whose claims would blow up the company in future.

Because the premiums were mispriced, there might not be adequate reserves for meeting fixed obligations.

Revenue projections involve marrying the management's estimated revenues with the analyst's projection of what he thinks is possible within the boundaries of the company's credit story.

Cost Projection

Each item of cost has to be modeled separately. The costs of a company which has long term fixed price supply contracts with creditworthy suppliers is easier to model. Items such as employee costs should be fairly easy to model except in times of bubbles when employee expenses might move out of whack with inflation and historical metrics. But because such periods are also marked by comfortable performance for most companies, errors in modeling employee costs are not perilous unless unions are involved and costs cannot be easily cut in a bad economy.

Raw material costs, especially those of commodities, unaccompanied by long term exchange traded contracts are difficult to model. In bad times, the lack of long term contracts might actually work in a company's favor. If the volume of sales of the company falls through a cliff, the absence of long supply term contracts brings two benefits. Firstly, the corporation does not have to off take a particular quantity of raw materials. Secondly, it can buy its supplies at a lower cost. In fact, from a creditor standpoint, raw material supply contracts do not make sense. In good times, not having long term supply contracts would reduce profitability and shareholder returns. But in good times, when the volume of a particular good consumed is higher, the threat of bankruptcy is low, if other costs are prudently managed. And in bad times, when the creditor needs protection, the long term supply contract is positively a menace.

So, what raw material/ supplier costs should an analyst assume in the absence of long term contracts? Because in good times, most costs can be passed on to the customer, using the current unit cost as the future unit cost would be a good starting point. Of course, if the company has one of the lowest margins in an industry, this assumption can be dangerous, particularly if the company is already leveraged. For leveraged, high cost producers who might not be able to pass on all their increased supplier costs to their customers, more stringent stress tests might be necessary than for low cost producers.

In the sphere of energy and conversion costs, change in the unit price of energy is the most important driver because existing plants are unlikely to deliver higher energy efficiency.

Companies with multiple plants are at an advantage. If a company has 5 plants and demand falls by 20%, it is more energy efficient to shut down 1 plant and operate the other plants at full throttle. A company with only one plant does not have such flexibility.

In the case of depreciation costs, it is safe to use current depreciation rates for projections unless there is clear evidence that the company is under providing for this cost.

Stop at EBIT...go to the Balance Sheet

The projection of revenues and operating costs helps an analyst to calculate EBIT. There he has to pause, because interest costs depend on balance sheet debt- both from long term debt and short term debt. One needs to go to the projected balance sheet to get the projected assets and how such assets would be financed.

Working Capital Projection and Short Term Debt

At the first whiff of increased competition, working capital conditions can worsen. The customers might demand lengthened periods for payment of dues. If this cannot be passed on to suppliers in terms of more generous payment terms, it would straight away require longer period for conversion of working capital to cash and higher short term debt.

The starting point for calculation of receivables, payables and inventory are current number of days of receivables, payables and inventory. Once one has projected the revenues and costs, using the days of receivables, payables and inventory, one can project the receivables, inventory and payables. The analyst has to be acutely aware of where things are in the business cycle- how many years into the current expansion one is on the business cycle.

Efficient working capital management through just in time inventory management etc. was supposed to put an end to business cycles. But that is unlikely because business cycles will last as long as human beings go from excessive optimism to excessive pessimism which rules out rational inventory management. If one is close to the end of a business cycle (obviously no one call the top, but it does no harm to be conservative), cash conversion cycle will get lengthened. The analyst has to make judgment calls on the extent to which the number of days of receivables will go up, and to what extent the days of payables can be stretched.

Finished goods will take longer to move out of stores and raw material inventory would move slower towards the shop floor- pushing up days of inventory.

Once one has calculated the working capital requirements, one has to assess how this would be financed. A starting point is to use current norms followed by the company- that is how much short term debt is used by the company to finance working capital. From the past record of the company one can calculate the amount of short term debt used for working capital financing by subtracting the current portion of long term debt from the total short term debt of the company. Of course the working capital financing projection has to be changed if management has indicated that future working capital strategy would be different and devices such as factoring etc might be used differently.

Capital Expenditure

The company's projected capital expenditure and financing strategy have to be used by the analyst to project future debt. Of course, the actual quanta of the debt can change- either due to change of management or M&A activity. If however the lenders have put in place covenant in the loan agreements which prohibit the use of debt beyond a particular level, the analyst at least has an upper bound of the amount of debt. Management's plans for rights issues to finance capital expenditure must also be incorporated

Back to the Income Statement

Once the debt level has been estimated, it should be possible to get a reasonable fix on interest expenses. The analyst has to use an intelligent estimate of the rate at which new loans would be contracted. Unless the analyst expects a hike in tax rates, the current effective tax rate should suffice for the analyst. That assumes that there are no businesses which enjoy tax free/low tax status which are expanding rapidly, in which case a weighted average tax rate would not work and a tax rate for each business has to be considered separately.

Final Capital Structure Projection

The analyst modeling dividend policy can either assume a fixed return on shareholder equity or a fixed percentage of profit after tax, based on the company's stated policy. Cash would be the balancing figure in the balance sheet. If cash turns negative, it means additional borrowing would be required, which implies higher interest cost. One has to then go through the whole process of estimating the projected income statement and balance sheet again.

The Integrated Look and Sensitivity Analysis

Once the base case balance sheet and income statement are ready, one can calculate basic ratios such as return on capital employed, return on equity, debt equity ratio, receivable days, payable days and inventory days etc. If some ratio comes out to be drastically different from

the realized ratios of the near past, the analyst needs to convince himself that he has used sensible assumptions and that he can explain the anomalous seeming ratio.

After the projections have been checked through ratio analysis, the analyst can stress tests certain parameters such as volume of goods sold etc. Stress test does not imply a blanket 20% increase in costs/fall in revenue etc. It has to be based on testing a critical parameter for values within the realm of reality.

Ultimately, the analyst needs to know what Benjamin Graham would call the “margin for error”

Key Takeaways from this Chapter

A credit investor cannot go by the financials projections supplied by a company’s management. He has to create his own projections. The process of creating projections completely focuses an analyst’s mind on the company’s credit story. It pays to have intense debates within the credit team and with the credit committee to ensure that no wrong hypothesis is formulated. While the designs of providence are inscrutable, a credit analyst can create a sensible financial projection by relying on first principles and logic. Credit cannot be extended for periods beyond which it is difficult to create projections without resorting to heroic assumptions.

Chapter 10 Not much Mathematics required

On almost all occasions, if you are using mathematical operations beyond addition, subtraction, multiplication and division in credit analysis or pricing of credit, you are up to no good. Perhaps you are trying to con some one- your boss, your client or worst of all, yourself. The chief cause of the credit crisis that started in 2007, in addition to macroeconomic issues such as easy money policy, was an abundant use of unsuitable mathematics and the non-use of common sense in the world of credit. Many PhDs in mathematics and physics tried to use techniques that are suitable in those fields but not suitable in finance, which as all great financiers throughout history have demonstrated, is an endeavor where common sense and reason must reign supreme. When leave is taken of common sense as during the various asset bubbles of history, disaster follows.

The expression “mathematical finance” is an unfortunate one. It permits second rate mathematicians an opening to peddle their wares out of context, purloined from fields of human endeavor where mathematics is the basis of dialectic exchange. If you opened a book on “mathematical finance”, you would be presented with a flood of mathematical symbols and a drought of logic based ideas and common sense. The term “mathematical finance” over the last three decades has proved infinitely elastic to describe any sophisticated mathematical tool used out of context in finance. Unlike Macavity, the rogue cat of T.S. Elliot’s poem, which when not participating in some larceny was “engaged in doing complicated long division sums”, the scoundrels of finance when not deceiving investors, were engaged in using stochastic calculus inappropriately.

There is never a constant critical parameter at which point financial bubbles inflate and burst- there are no critical constants such as acceleration due to gravity, the charge of an electron, the locus of Uranus’s journey around the sun etc. Even the unit of measure in finance, the

value of the coin of the realm does not remain constant. The relative value of assets change all the time. The number of kilograms of cocoa needed to buy an ounce of gold depends on relative preference for the two assets, which never stays constant. The laws of Electrodynamics never change- the competitiveness of countries and companies and the viability of business models never stays constant.

The credit story, unlike physics, is all reasoned prose, supported by some back of the envelope calculations. The system of reasoning would owe its origins to the ancient Greek philosophers. Heraclitus, who was born in 535 BC believed that all things are in a perpetual flux, not in a random fashion, but structured by logic. That is exactly what a credit analyst should be trying to do- weaving a concrete story around a company's profitability in a world of changing incentives for innovation, changing technology and changing multilateral treaties, to draw conclusions based on established principles and sound logic. And because the response of a company to change and its ability to withstand change can be foreseen by human faculty only for a certain number of years into the future (the number of years that can be foreseen depends upon the industry and the perspicacity of the analyst), credit cannot be extended for very long tenures. You might argue that Apple has the DNA for innovating and producing great products- today it is the i-phone, tomorrow it would be something else. The creditor can lend only to the extent that he can foresee the sales, profitability and RoCE of the i-phone business. The rewards and hence risks of the new products that Apple will hopefully gift to humanity in future belong strictly to the venture realm.

Applying mathematics to the laws of Physics you can predict (nay assert) that Haley's comet will appear in the inner solar system in mid 2061. Applying mathematics to finance, you can't assert that Coca Cola will be around in 2025, let alone whether it will be generating adequate returns on capital employed to service debt. Would a global obsession with obesity destroy its core sugary fizz business? Would it mutate into a maker of something else like

Finnish forest product company Nokia? Would having a celebrity jumping around exuberantly after drinking the dark brew in an ad appeal to the teenager of 2025?

The Flaws of using advanced Mathematics in Finance

Humans learn from their mistakes. They devise more productive ways of doing things.

People change their consumption and investment behavior in response to incentives.

Companies change their business models in response to new technology and competition.

Above all, humans innovate. They have been endowed with the free will to learn and

unlearn. Around man, are particles and systems, planets and galaxies, black holes and dark

matter. They cannot behave in ways other than what has been ordained for them. Hence,

their behavior can be modeled by mathematical equations once man has understood the

governing laws that were intended for them. Kepler's laws of planetary motion describe how

planets would orbit around the sun. The laws are as true now as they were in 1605 when

Johannes Kepler formulated them.

The charlatans peddling financial mathematics wares say they can use variants of the same

equations which are used for invariant systems. Yet, even a simple empirical relationship

such as the relationship between unemployment and potential GDP in the US (Okun's law)

has been found not to hold in the new globalized economy. As the economist Charles

Goodhart put it "any observed statistical regularity will tend to collapse once pressure is

placed upon it for control purposes".

In such a state of affairs can you assert that there is a single correlation value between the

default probability of General Motors and Ford? Is the bankruptcy of its leading competitor

good for Ford as it has emerged as the single American car company that did not take bailout

money, or is it bad because the competitor is back with its debt erased? When you are not

even certain whether the correlation is positive, negative or non-existent, how can you take

the additional step of ascribing a value to the correlation? Yet, this is what the purveyors of structured credit have been doing. Default correlations between companies based on the fact that they operate in the same sector and other irrelevant linkages are simply stupid. Honda and Toyota were profitable in the US despite operating in the same sector as General Motors. Unless you are aware of the credit story, and how the story is going to change, you will have no idea where the correlation is today and where it is likely to be tomorrow or a year from now. In fact, it is pointless to calculate default correlation as we will discuss later in the section on CDOs.

Similarly, because you don't know how Coca Cola's stock price will evolve over the next 10 years, you can't put in a volatility parameter (volatility of share prices) and get a value of a call option of the stock. The more uncertain the outcome the more valuable is the call option. That makes sense. You will be willing to pay higher when the potential gain could be higher and the losses limited to the paid premium. But what is the uncertainty number? Is it 20%? Is it 50%? Asserting that the volatility number should be X% because that was the volatility the share price had in the past 1 year is silly. And calculating implied volatility from market prices of options is less than smart because stock price volatilities can change suddenly in response to changed liquidity conditions. If you don't have a *precise* value for the volatility, the mathematics, though elegant is useless. In fact that sums up the role of mathematics in finance - a show horse rather than a workhorse. That is exactly the opposite of how mathematics is used in Physics. In fact the use of Mathematics in finance, involves being simultaneously vulgarly simplistic through reckless approximations and needlessly complex in pursuit of false precision.

The funniest application of financial mathematics happens at investment banks. You would have one arm, publishing asinine credit research reports which would contain non-sequiturs like "Debt/EBITDA of company A is X, that of company B is Y (X higher than Y), but A is

trading at a spread of S_A while B is trading at a spread of S_B (S_A less than S_B), so go long B and short A”. This is called a relative value trade! You would have another arm, filled with people with physics and mathematics degrees, but ill equipped with finance skills and commonsense, doing advanced credit risk modeling and pricing of credit despite having no clue of the underlying drivers of value of the businesses or assets. In those groups, reality and real world situations are pointless distractions. Unfortunately for them, the real world is vastly different, a domain without simplifying assumptions and the background music of la-la land. And to senior management in such places, “everything unknown passes for something splendid”.

Insurance companies use a bonus-malus system for adjusting the premium paid by a customer according to his individual claim history. Only when this method is used in executive compensation in the banking industry to claw back past bonuses, claimed on the basis of dubious use of mathematics to value assets held in the book, would the asinine use of such methods go away to be replaced by common sense. However, to ask a trader who just lost a pile of money to repay his past bonus secured through dubious model based valuations is regarded as uncouth- as uncouth as “asking a medieval witch doctor what happened to the ritual offering after the sacrifice had been made”.

Correlation does not prove causation: the Story of FICO Scores

Seldom has a company's role in the credit markets acquired such a cult like status as did the credit scores of the Fair Isaac Corporation. The company, set up by an engineer and a mathematician in the late 1950s in the US, devised the FICO scores for assessing the credit quality of an individual who would apply for a retail loan product such as credit card, home loan etc. An individual with a higher FICO score was regarded as a better credit than an individual with a lower FICO score. The amazing thing about this model is it did not consider as an input the two key drivers of an individual's credit quality- his income and his

savings. The savings component is important because an individual can have a high income but if he has a lifestyle which goes beyond the high income, he could still go bust. Witness the late Michael Jackson, a famous singer of the 1980s, who got into deep financial trouble in spite of an income beyond the dream of avarice due to his peculiar lifestyle.

The FICO score did not consider these critical inputs for judging credit quality. It was almost like trying to evaluate a student's mathematical ability from his scores in a Mandarin or a Cookery course. The most important parameters considered for the FICO score were payment history, length of payment history, types of credit used and utilization of available credit. Besides the deep flaw in its design, it was a score which was begging to be gamed against. However, it did not show up as an unmitigated disaster until many decades later for several reasons. Firstly, in developed countries, until the 1980s, retail credit was still given out by a banker who used traditional measures of credit quality and tons of common sense—not through use of a dumb score. It was only during the 1980s when the credit card revolution began and credit limits were granted without interaction with a banker, the FICO scores began to be used in real earnest. Secondly, until the 1980s, Americans had a strong economy and healthy savings which ensured credit servicing ability even in the deep recession of the 1970s. And if an individual missed a payment, it was most likely due to his low savings (which was not the norm then). From the 1980s, for the next two decades, fuelled by debt, the United States had very robust growth. Unemployment rate was at record lows- so only a deadbeat who did not want to work missed his payments- i.e. there was a good correlation between payment history and income. The relationship broke down in the middle of the first decade of the twenty-first century. You might have a good payment history and hence high FICO scores despite the fact your job got outsourced to India and your savings were negligible. That is because current and future income and current savings have not been considered for assessing creditworthiness. Likewise, an individual might have

had a spotty payment history as a student because his only source of livelihood was flipping burgers at the college canteen. Such an individual's creditworthiness changes rapidly once he secures a high paying job on completion of his course. The full fledged folly of the use of FICO scores will be evident in the next five years. Early signs of failure of the FICO model are all too evident.

Financial Models and the pricing of Credit

Different mathematical models have been designed in the world of credit. Because new outrages are thrust on credit analysts everyday, we can't keep up with what these armchair credit high priests are up to. In this section, we discuss a few models that are out there and why they make no sense. Similar arguments can be used against other models haunting the corridors of investment banks and structured finance divisions of credit rating agencies.

Hazard Rate and Survival Models- senseless use of Insurance techniques

A recent development has been the usage of actuarial techniques, used by actuaries in the life and P&C business, in the world of credit. Actuarial methods make sense in the insurance business, because an insurer is functioning in an area of limited knowledge about the risk he is insuring. A P&C actuary using a Poisson Process to model the frequency of hurricanes does so because he does not have the wherewithal to know in advance the process of air current motion which causes the hurricane. A life insurer does not have access to the genome data of the life being insured- hence he has to go by limited data such as cholesterol and blood pressure reports for accepting an insured. In addition he uses age as a factor for calculating premium based on past data of the mortality rate of people of a particular age. An abuse of insurance techniques committed by rating agencies is the publication of the so called transition matrix. This matrix is used extensively in the credit markets for pricing credit risk. A transition matrix, among other things, is used for estimating the probability of

default (PD) of a borrower. A rating agency groups together all companies rated by it in a particular rating category, say single A, one year back. It then looks at the number of those companies which have defaulted during the course of the year. Say, of the 1000 companies rated A by the agency a year ago, 5 defaulted during the course of the year. The agency would say that PD of companies rated A by it is $(5/1000)*100 = 0.5\%$. Of course, the rating agency is not that simplistic- it calculates the 1 year PD of companies rated A for several years into the past to account for the different points in the credit cycle. Then the rating agency calculates the average of the annual PDs and pronounces it as the PD of a credit of that rating category. Credit investors, when investing in A rated entities, add this PD number to the other parameters that they use for pricing the loan - cost of funds, operational expenses, required return etc.

This is a gross abuse of actuarial techniques used by the life insurance companies. Healthy companies unlike healthy human beings do not expire suddenly due to accidents or sudden causes. Lehman Brothers, to the non-analyst, expired suddenly over a weekend. To the analyst, Lehman Brothers was a severe HIV case- all that happened over that fateful weekend of September 2008 was that it contracted pneumonia which pushed an already sick company over the brink. If a company rated highly by a credit rating agency defaults, it reflects poor credit analysis. The agency should not hide behind actuarial techniques to pretend that it was only to be expected that a certain percentage of its highly rated entities will default.

The second reason why companies cannot be analyzed at bulk levels is that companies are heterogeneous beasts that cannot be grouped together using an artificial criterion such as credit rating. This is unlike the age criteria of the life insurance business. A life underwriter has very limited information about the life being insured. All he knows are the blood pressure and cholesterol levels- he does not have access to the insured's genetic code (the subject on whether we should be looking at the genetic code at all is a theological one we

will not get into here), which would indicate his propensity to illness in future. If he had the genetic code of the life being insured, he would not use the following methodology- the insured is 35 years old, the probability of a 35 year old dying in the next 10 years is X% and hence the annual premium should be \$Y. In fact, he would not use age at all in his analysis. From the genetic code, he would know precisely the chance of this individual falling severely ill in the next 10 years (remember, due to accidents and other reasons, the probability of death would be higher than indicated by the genetic code). Credit analysts, on the other hand, have the precise genetic code of the company in the form of its credit story and its financials. Why use misplaced cluster analysis (that is putting together all companies rated A) when you have the precise genetic code of the specific company? Statistical analysis makes sense for retail credit analysis where the lender has limited information about the borrower and a large number of borrowers are involved. Putting together homogenous retail groupings for analysis using parameters such as income level, etc makes sense. They make no sense whatsoever when applied to corporate credit analysis. It is for this reason the use of Monte Carlo simulation techniques in the pricing of corporate credit instruments is not a very bright idea. It is like doing simulation to forecast the loss of insuring a pool of smokers from lung cancer, when you have their chest X-Rays and blood samples plus their genome data.

The rating agencies had rated Lehman single A till the day the company went bust. If you had priced your Lehman lending based on the delinquency rate of the borrowers of that artificial category, you would have experienced a serious amount of pain. If on the other hand, you had looked at the revelations of its protein coding genes in the form of the company's Level 3 assets, its poor credit story, you would not have lent to the company, let alone face the necessity of pricing the loan. If you looked at Lehman's genes in 2007, you would have spied a seriously ill patient. Of course, you would not have been able to forecast whether the company would expire in 1 year or 3 years or whether it would be bailed out.

But bad things were in the horizon and you would not have written CDS protection on that name.

An allied abuse of insurance techniques is the use of the Poisson Process to estimate a so called hazard rate of credit defaults. This method could have been only created by a person who has never worked in the real world of credit. Defaults do not follow a Poisson Process. In times of abundant liquidity, there are negligible defaults. Suddenly liquidity tightens and there are a plethora of defaults. You can forecast that a large number of defaults are likely to happen the moment you see the societal debt ratio (household debt plus corporate debt plus government debt as a percentage of GDP) ramping up. Why have a bulk hazard rate when from the corporate financials and credit story, you know precisely which credits will be affected when bad times come- you can count them one by one like your blessings? A hurricane forecaster does not know the number of hurricanes that are likely to hit in a season. And till the hurricane hits, he does not know whether it will hit New Orleans, Louisiana or Mobile, Alabama (the losses would be very different in the two cases). If you came from Mars and did not have access to the peculiarities of the DNA of each corporation, you might model the credit risk like the hurricane forecaster. When you have the DNA of the company and price credit this way, it is scandalously stupid and deserve to be hanged, drawn and quartered by your investors.

Merton's Model and the Structural Approach

Robert Merton in his 1974 paper in the Journal of Finance titled "On the Pricing of Corporate Debt: The Risk Structure of Interest Rates" came with a key insight that creditors to a firm have written a put option to the shareholders of a firm. This gives the shareholders the right to put the firm onto the debt holders should the value of the firm's assets fall below the face value of the firm's outstanding debt. So, shareholders have unlimited upside from the success of a firm while having limited downside. That is an insight which creditors would do well to

remember- their risk-reward profile is vastly different from that of shareholders. Hence, the shareholder's risk appetite would be enormous- and the more leveraged the firm, the more would be the tendency of the shareholders to take punts, because with a very limited investment, they can get enormous returns. This is clearly borne out by the risk appetite of leveraged firms such as banks. In those firms, the creditors need to be even more vigilant.

The other useful insight for creditors is that they should keep a track of a company's share prices- particularly for sharp movements. The traditional thought has been that fall in share prices is worrisome, because it might imply that the value of the firm's assets could potentially fall below the face value of debt. A sharp rise in share prices should also attract a creditor's notice and cause further investigation. Why is the share price going up- it is because the company has embarked on a risky adventure that could have huge payoffs (thus increasing the value of the options embedded in a stock)? The sharp rise of share prices of US financial institutions in 2007, before the institutions collapsed in 2008 does point in that direction. Or is the rise in share prices based on expectation of rise in earnings from the company's current businesses? A rising share price could also be used as a tool by management to make imprudent acquisitions which could saddle the acquiring company with the acquired company's liabilities (particularly contingent liabilities). In addition, a sharp change in share prices could be on account of a likely change in capital structure by the management.

Just because the two borrowers defaulted at the same time, it does not mean that their credit risk as measured by their stock prices was correlated in a prior period- one might have defaulted because its business model went kaput, while the other might have leveraged itself to the hilt such that even a small downturn in revenues caused it to go belly up. In a bull market, the stock of the leveraged entity might have gone up, while that of the company whose business model was broken, might have gone nowhere in particular. So, if you had

calculated default correlation based on stock price movements, you would be shocked when both the entities default together.

Aside from these insights, lots of abuses of Merton's research happen and models based on Merton's findings, called Structural Models are peddled around. A creditor should be wary of such models. Just because we know that the creditors have written the shareholders a put option does not mean we can value it accurately. Structural models attempt to do precisely that- from the equity price data, balance sheet liabilities of the firm, as well as implied asset volatility, they calculate the credit spread to treasuries. There are variations to this silliness such as calculating bizarre stuff like "distance to default". A company makes a living out of such arrant nonsense. Instead of wasting money on such clueless pursuits, the creditor will do well to keep his eye on the share price and perpetually assess shareholder motivations, which, instead of earnings, could be driving up those prices.

The limits of the Reduced Form Model for pricing Credit Risk

Users of the so called reduced form credit models take the market credit spreads as the correct estimate of credit risk and use it to price various credit instruments and credit derivatives of a particular entity. After all, the credit spread (the spread at which the bonds of a particular company trade to treasuries of the same maturity) is the market's estimate of the amount required for covering the risk of expected losses that an investor in those bonds might suffer. While the signal of market spreads is a far superior gauge of credit quality than credit rating action, it is far from perfect. In times of abundant liquidity, markets tend to underestimate the probability of default, while in times of fear they tend to overestimate probability of default. Using this input to price long dated credit instruments and credit derivative exposures is fraught with risk. Any credit investor who worked in the field between 2000 and 2009 does not need any further evidence on the veracity of that statement.

Those who had priced their long dated credit derivatives based on the probability of default implied by the markets in 2006 would have experienced considerable pain in 2008.

Factor Models and lazy Analysis

Factor models attempt to predict credit spreads based on a certain set of factors such as stock price returns, debt/EBITDA, credit rating etc. If the spread from the factor model indicates a spread higher than market spreads, the expectation is that spreads would widen and prices would fall. Like all econometric models using past data to predict future outcomes, the factor model's only redeeming point is its simplicity. It serves the purpose of giving lazy analysts a way out of serious credit thinking. Unfortunately, there are no short cuts in serious credit analysis. Factor models might work for short spells, but basing credit investment decisions, whether long or short term, on this method is an easy way to lose money. If in one cycle, corporate leverage (a balance sheet problem) was the source of trouble, in another it is household leverage (and hence an income statement problem for a corporation). Besides, reported numbers in the financial statements used to calculate ratios such as leverage ratios might have to be adjusted for overstatement post understanding the credit story. Factor models serve no purpose other than to lower the signal to noise ratio in the analytical world.

Discriminant techniques and Altman Z Score

The Altman Z score, devised by Professor Altman might have some similarities with factor models but it is philosophically different. The so called Z score is used to predict the likelihood of a firm going into bankruptcy. It uses a few common financial ratios such as Sales to Assets, Debt Equity, Return on Capital Employed etc. to discriminate between companies that are likely to go bust and others, by comparing it with characteristics of firms that went bust in the past. It uses a statistical technique called discriminant analysis. The Z-

score is a linear combination of the financial ratios weighted by coefficients derived from discriminant analysis. The Z score takes the form

$$Z = A_1(\text{Financial Ratio})_1 + A_2(\text{Financial Ratio})_2 + A_3(\text{Financial Ratio})_3 + A_4(\text{Financial Ratio})_4 + \dots$$

Where the constants A_1, A_2, A_3 etc are calculated through discriminant analysis

One can use this technique as a supplement to fundamental and thorough credit analysis. If for a firm the Z score indicates a possibility of bankruptcy, one should do a very thorough analysis to verify if our fundamental analysis confirms it. One should certainly not accept a credit based on Z score. You definitely can't use the Z score formula of one country in another, for the simple reason that the accounting might be different. Our quarrel with the Z-score technique is the assumption that a firm defaults purely based on internal drivers- over the last few years it has been clearly evident that the external ratio of consolidated societal debt to GDP would also play a role in determining if a company will default in a certain time frame. Anyway, anything but detailed credit analysis cannot be used for accepting an entity for investment.

Securitization Math: measuring with a Micrometer and cutting with a Hack Saw

Securitization does not create or destroy credit risk but redistributes the risk or tranches the risk in such a way that one tranche has a lower credit risk than the underlying credit risk and another tranche has a higher credit risk. Let us consider two corporate loans with the same terms and conditions, the same maturity and the same outstanding amount, that are securitized through issue of two classes of notes (both of equal face value), with the first class (say class A) of notes having to be repaid ahead of the second class of notes (say class B). Obviously class A has a lower risk than class B, or at worst the same risk as class B. If one of

the borrowers defaults, Class B would not get repaid while class A would be repaid in full. If both the borrowers default, neither Class A nor Class B would be repaid.

Securitization, in the traditional sense, was used to offload a pool of retail loans such as 1000 auto loans, residential mortgage loan etc from a bank's balance sheet. Tranching could be done in the same way as with the two corporate loan examples above. You perhaps tranced it in such a way that the first tranche had practically no chance of seeing default. The next tranche had a slightly higher chance of seeing default. You might have more subordinated tranches bearing BBB and BB ratings. The junior most tranche would be unrated as it was almost certain to see the effect of default of some of the retail loans.

In assigning ratings to the tranches, S&P and Moody's have a philosophical difference. S&P assigns ratings based on *expected probability of default (PD)*. So, if a tranche is rated BBB, the probability that the tranche would see a loss (no matter how small or big) is the same as that of a BBB rated corporate bond. Moody's on the other hand does not go by probability of default. It estimates the *expected loss(EL)* to the tranche from defaults on the underlying loans and would rate a tranche BBB if the expected loss of the tranche would equal the expected loss of a BBB corporate bond. The Moody's approach makes more sense. Let us consider a tranche with a face value of \$10 million. Would the anguish to the investor in the tranche be the same if the tranche had a shortfall of \$ 100 as \$ 5 million? The S&P system would treat both alike. Moody's takes into account the vastly different economics of the two events.

Securitization does have a strong economic rationale. Done correctly, and evaluated correctly, it is more predictable than a single corporate loan. While S&P might assess a tranche based on PD and Moody's based on EL, they don't take into account the volatility of either PD or EL. For an underlying pool of loans originated as per the same underwriting standards as historically done, the securitized tranche would have lower volatility of credit

outcomes than a single corporate loan. The key issue is having the originator underwriting to the same standards. If the underwriting standards change, PD and EL estimates would go for a toss.

As a part of checking abuse of securitization by originators who get indifferent to the quality of underwriting, one suggestion has been to have the originator stay invested in the junior most tranche. This, we feel, might not achieve the aim of checking originator abuse. What if the originator, who historically had a PD on a class of retail loans of 2% and the junior most tranche on loans originated by him is sized at 3%. If the originator weakens his underwriting standards substantially, the PD might jump to 5%, but the originator would have captured upfront substantially higher benefits than the 3% loss he would suffer from being exposed to the first loss piece. Perhaps, it is better to specify in the securitization documentation the minimum permissible underwriting standards. If the underwriting standards were found to have been weaker or if there has been a fraud, the securitization trustee should have the option of putting the loan back to the originator. There could be a provision that if a loan is put back to the originator on account of not complying with the terms and conditions of the securitization documentation, a fine has to be paid (a certain percent of the face value of the loan put to the originator) by the originator to the securitization trustee, which could serve as a credit enhancement for the transaction. At the maturity of the transaction, balances on this account can be paid to the investor in the junior most tranche, who would act as a vigilante for the whole transaction. There is no need to have the originator investing in the junior most tranche- in fact under this scheme, he would be prohibited from investing in the junior most tranche.

Analytical framework for analyzing a Securitization Transaction

What does a securitization investor require to analyze and price the credit risk of a transaction? Let us consider a transaction which securitizes 1000 residential home loans of

various maturities. The object of the investor's analysis is to evaluate the expected losses of the pool of mortgages, irrespective of which tranche he invests in. For doing that, firstly he needs to know the underwriting criteria of the loans originated- the Loan to Value Ratio (LTV) and the Income to Installment Ratio (IIR). Obviously, there is no room for "liar loans" where the borrower gets a home loan based on stated income and not documented facts. The underwriting should be done to a consistent LTV and IIR, only then the delinquency rate can be compared across different years. This captures the higher delinquency rate in years of economic slowdowns and lower rates in years of economic abundance. If the LTV or IIR changes thanks to relaxation of underwriting criteria, losses across years can no longer be compared. Hand in hand with this micro analysis, the investor must have a good idea of how the household debt to GDP ratio has moved over the years. If the ratio is hitting high levels by historical standards, a change of economic conditions with increasing defaults and fall in asset prices is likely. So, using a combination of loss experience for a given underwriting criteria and the macro household debt levels, one can evaluate the expected losses. If the household debt has remained static as a percentage of GDP, you are safe to assume, for a portfolio of not very highly seasoned loans (say not longer than 6 to 9 months) the expected losses to be the product of the default rate seen in the worst period of the last downturn and the severity of loss the moment a loan went into foreclosure. The more seasoned a loan gets, the probability of default starts falling as the householder starts building higher and higher amount of equity in the home. This serves as a margin of safety. As the margin of safety keeps increasing, one can invest in tranches lower and lower in the capital structure. On the other hand, if the household debt is quite high (no absolute number, just high by historical standards), one would multiply the expected losses by a factor of safety- the higher the household debt, the higher the factor of safety the investor needs to assume. Every business cycle would be different from the previous one- so one cannot give all weightage to past

delinquency experience. It just serves as a good starting point for tinkering, such as adjustments for seasonings, adjustments for household debt, etc. It does not make sense to use formulas for this- just intelligent adjustments based on one's risk appetite.

The same techniques can be used for other retail loans. The only requirement is that the loan product should have seen a business cycle so that one can get a fix on the PD and EL. A product which is new and has not seen a business cycle is not ready for securitization. Not only can you not estimate the losses, new products might require close and continued interaction between originators and borrowers for modifying loan clauses in response to changes that might not have been foreseeable at origination.

Moody's has fun with Lognormal Models and Fourier Transforms: Investors don't

As we saw earlier, what is required for evaluating a securitization transaction is the estimation of expected loss of the underlying pool and assessing the possibility of the loss hitting the tranche which one invests in. Once that is clear, you price the tranche based on "what the market can bear" and what alternate investments can yield. Also, we saw that calculations involved were quite simple. But remember, before we rushed like Gadarene swine to do the calculations, we checked two things- whether underwriting standards of the originator had changed over the last many years that default data was available and to what extent the household sector of that country was indebted vis-à-vis historical levels.

Moody's is renowned among rating agencies for its quantitative prowess. Over a period of time, the agency came to the conclusion that any model that was simple was simplistic.

Hence it got deeper and deeper into the "quant race", under the thesis that complexity can be a substitute for common-sense. There almost seemed to be a fetish for using sophisticated mathematics in areas where the benefits of their usage were peripheral at best and pernicious

at worst. And most of the quant analysts of Moody's seemed ill-trained and ill at ease in credit analysis.

First, Moody's started calculating expected losses of an asset backed pool of loans by modeling the loss process with a lognormal distribution, using mean and standard deviation of cumulative default rate. We have nothing against using a lognormal distribution if the losses do follow that distribution. Only, it is a needless distraction which will make the analyst take his eye off the ball, which is focusing on the underlying credit story, where one is in the business cycle, what the household debt indicators are, has there been any change in underwriting standards etc.

If Moody's had stopped at that, they might not have made priceless asses of themselves as they did during the securitization craze of the first decade of the 21st century. They would have focused on credit fundamentals and not on creating techniques more bizarrely juvenile than the last. For sheer wackiness, Moody's usage of Fourier Transforms for calculating expected loss of an asset backed portfolio takes the cake. Fourier Transforms are priceless tools for electrical engineers in analog signal processing. But in credit analysis? Moody's claimed in a technical document of 2003 that the technique is the right one when the underlying assets have heterogeneity "in terms of rating/credit risk, size or maturity". Top grade mathematicians are fashioned for a noble calling- the inferior ones resort to confidence tricks in the world of finance.

Mathematics, retail credit analysis and common sense

Probably the only area where the use of actuarial techniques in any form or shape makes sense is retail credit analysis. In a retail loan portfolio, as long as the loan characteristics (in terms of loan to value ratio) and borrower characteristics (in terms of income to loan installment ratio) remain broadly constant, the default experience remains within a band over

a business cycle. Remember, that assumes that the societal debt ratio (SDR) is within reasonable limits. If the SDR is spinning out of control, lending even to prudent borrowers can be risky because when the debt driven party ends, unemployment shoots up afflicting even households which have been prudent. In those periods, even asset values can collapse, driving down collateral values and driving up loan to value ratios. So, there is little to distinguish a good borrower from a bad borrower when SDR is outside the band of prudence.

If SDR is within prudent limits, actuarial techniques can be used to forecast loss experience at various points on a business cycle. However, the use of common sense should never be eschewed in favor of advanced mathematics. Credit scoring for retail credit makes sense provided the independent variables used for scoring, unlike those in used in FICO scores, are actual drivers of default and leading indicators of it. Always remember, just because two variable A and B are correlated, it does not mean A caused B or B caused A. And if A did not cause B, studying A to predict B is useless.

In general, quantitative techniques (more specifically actuarial techniques) can be used for predicting default experience of retail pools of loans. As long as the underwriting standards remain same, you are not interested in the credit scores of individual borrowers (whether it is the FICO score or some other score) nor are you interested in knowing the distribution of such scores in a pool of loans. And once you have a reasonable fix on the likely default experience of the pool, further use of further sophisticated techniques is sophistry.

Credit Default Swap Trading Strategies without abusing Mathematics

While one need not be a fan of capital destroying activities such as trading as an end in itself, a good credit investor might want to use credit derivatives if after a well reasoned credit analysis the investor feels that the market offers mispriced opportunities. Credit trading gets more and more suspicious as reasoned credit analysis is replaced with mathematical wizardry.

From your credit analysis you can come to the following conclusions- the company being analyzed will not default within the time horizon under consideration, it will default in that horizon or it might default in the horizon.

It is easier to assert that a company will not default in a given time horizon than to assert that it will. Easy money policies of central banks and gullibility of creditors can ensure that a company might survive longer than it would have without the crutches offered by others. Having discussed the two credit events of default and no default, the grey area of “it might default” remains. The first thing that a sensible analyst will do when confronted with an event that might happen is to ask what is the likelihood that event will occur? Obviously, the likelihood is a percentage between 0% (the event will not occur) and 100% (the event will occur).

We saw earlier, how the proponents of the reduced form model evaluate PD from market credit spreads. Sadly, that PD calculation comes from a lot of mind-numbing assumptions. Firstly, credit markets practically never price credit losses correctly- either the market underestimates the risk of losses or it overestimates the risk of losses. The market price of *credit risk is really a function of market liquidity and fear, not a product of rigorous credit analysis*. In fact, the market, thanks to its propensity to be wrong at all times, offers the credit investor continuous opportunities, whether as an assumer of credit risk or as an off-loader of the risk.

For a second, even if we consider that the credit spread indicated by the market as correct, credit spread to risk free assets is a measure of expected losses (EL), not PD. And EL is the product of PD and LGD. You can't calculate PD from market revealed EL unless you know LGD. Market participants, in a very casual way assume a value of LGD and then calculate PD by dividing the EL by LGD. Alas, you can't be very casual about your PD value- because the PD is the relevant parameter on the likelihood of a credit event occurring, not

how much losses occur post the occurrence of default. And once the credit event occurs all hell breaks loose. So the calculation of PD from so called market inputs is less than useful. And we had already discussed why structural models, beyond big picture indications of whether a credit is deteriorating or improving, are useless. So what does the credit investor in the single name credit default swap market do before plunging in?

Limits of PD and LGD Estimates

Sensible analysts now recognize that PD and LGD of a credit are not independent of each other. That should be obvious because if a company is generating low returns on capital employed (thus increasing its PD), the assets created with the capital employed would also lose their value (and hence increasing LGD) as asset buyers will not be willing to buy such low yielding assets without a substantial haircut to book value. Only an investor who is content with lower yield would be willing to pay a higher price for the assets. Valuation of the assets involves evaluating what would be the highest amount that an investor would be willing to pay for the business as a whole.

The obvious rejoinder is why not use the equity market value and add it to the debt to get the value of firm? In that case, as long as equity price is greater than zero, the LGD would always be zero. Unfortunately, LGD cannot be calculated from equity market inputs. The equity market also has a tendency to overvalue and undervalue assets. Stock prices have the tendency to halve and then halve again within a few days. In addition, the equity price incorporates the optionalities involved in the business of a firm. There is potential for sudden turnaround, there is a possibility of another corporate emerging in the horizon to buy out the firm, there might be government bailout on account of having a godfather in the treasury secretary of a country – those optionalities should not be considered by a creditor for his valuation and calculation of LGD.

All estimates of LGD will be correct only within a broad range. The first stage of LGD estimation involves creating the financial projections (discussed in Chapter 9) for the period of a loan, bond offering or CDS protection. If the CDS protection is for three years, create a three year financial projection under conservative business conditions. Calculate the RoCE for each year of the period. If minimum RoCE is greater than the cost of capital and the loans of the company have covenants which prevent management adventures, as far as the credit goes, the PD is zero and LGD calculation irrelevant. This is not the framework that rating agencies and the users of such analytics use as we had discussed earlier. They calculate the PD of each rating category based on cluster principles.

What if the lowest RoCE during the time horizon is less than the cost of capital? Obviously that does not mean that the company will surely default. Even great companies can have operational losses for a couple of years for various reasons. It then means the company needs external infusion of capital, whether debt or equity or has to carry out asset sales. For a company that has low RoCE and a high gearing, the chance of raising additional debt capital gets lower and lower and the PD gets progressively higher. However, in times of abundant liquidity, when high yields are hard to come by, there will always be a credit investor who will find an excuse (“the new paradigm”) to supply the debt required and prolong the company’s agony.

Even if the credit markets have abundant liquidity, as the credit quality of a corporate worsens, the credit investor should have a clear idea of what the LGD would be if the company sputters. One way of evaluating what the LGD would be is to estimate at what value a rational third party, who does not put too much premium on synergies and other extraneous factors, would be willing to buy the company so that he gets a fair return on capital employed. What is that fair RoCE that one should consider? We don’t favor using the capital asset pricing model (CAPM) or other mechanical models based on past data. We also

don't favor assuming that the buyer would be an incurable optimist, who would assume drastically changed cash flow circumstances on account of a 180 degree turnaround. It might happen, but a creditor has no business assigning a probability to that event. If that event does happen, it means credit conditions are not tight- in which case the borrower himself might not default. We favor assigning a RoCE equal to the best RoCE in the industry during good times in that industry. That might seem overly conservative, but we presume that an acquiring company would be shooting for a high RoCE, particularly in times of stress in the economic environment when a buyer can set the price. Another question on this choice of an absolute number for RoCE - what if we are in a low interest rate environment? Again, a high risk environment might also be one where risk appetite would be low- hence setting a high RoCE bar might not be outlandish. Once you have the RoCE, what should be the amount of capital employed be, for the given projected operational earnings, so that the targeted RoCE can be achieved? This is the capital employed based on targeted return. We have 2 numbers- actual capital employed, and capital employed based on targeted return. The LGD would then be the ratio (Capital employed based on targeted return/ Actual capital employed).

Liquidity is the reason why it is easier to predict non-default than it is to predict default. This analytical asymmetry means the protection seller (who is betting a credit will not default) is always at an advantage vis-à-vis the naked protection buyer (the one who is betting a corporate will default). Also it has to be kept in mind that credit spreads do not always widen in response to worsening credit quality or narrow as a reaction to improving credit quality. The external liquidity will ensure that there is no decoupling between individual credit spreads and average market credit spreads. Only when a default seems almost inevitable will spreads start decoupling from the market spreads. Because of analytical asymmetry, writing credit protection at times distress, when all spreads move up, on high quality companies is a better bet than buying protection on low RoCE companies during times of abundance.

Credit Default Swap Trades

A number of credit derivative investing strategies are available to the credit investor. We would like to call them investing strategies because they are based on rigorous analysis and not by doing a pair of trades and hope the situation reverts to a mean or hope that fate would be charitable. We discuss some strategies that work and some that don't work.

CDS versus Bond Arbitrage

A simple, nay simplistic trade is based on comparing the asset swap spread of a bond (a first cousin of the spread of the bond, for details on asset swap spread, see any fixed income text book) with the CDS premium. Avoid these trades like the plague unless one can estimate the value of the numerous structural differences between bonds and CDS such as bond covenants, credit events of CDS including restructuring, optionalities in the capital structure of a firm etc. The markets are not that inefficient that they leave these simple arbitrage opportunities unattended.

Credit Curve Shape Trades

Unlike interest rate curves whose shape is determined by interaction of macroeconomic factors and central bank action, the shape of the curve obtained by plotting CDS premium for different maturities should be different for each credit and linked to its innate credit story. However, this does not happen in practice. All credit curves tend to be too steep or too flat at the same time depending on investor risk appetite (linked to market liquidity). This can throw up interesting opportunities for those who have done their credit analysis homework well. Let us say, for a particular credit, you do not expect any credit event in the next three years, if no credit event occurs in the next year. As per your analysis the credit curve should be downward sloping. However, this does not happen in practice. If the credit curve is

sharply upward sloping, one should sell 3 year protection and buy one year protection to benefit if one's analysis turns out right. Numerous such trades are possible.

The starting point for such a trade is the clear postulation of an investment thesis based on credit analysis. You look at the curve shapes available in the market. If a curve shape is, in your opinion, not correct, you must find out why the market is pricing the credit risk for various tenures that way. If you disagree with that reason, you can enter into a trade to take advantage of the anomaly.

Convexity Trade

Convexity trades are trades which profit from extreme movement in credit quality- either sharp improvement or sharp deterioration. In the case of distressed credit, it could involve buying a long dated cash bond at a discount to par and buying a short dated protection on that credit. All depends on the price at which you bought the protection. When a credit binge is underway, credit protection can be obtained at sharply incorrect prices. The convexity trade yields money under extreme situations- that is the credit sharply improves within the period that the CDS protection is present or the credit defaults in that period.

Trades with LGD Analysis

Within a consolidated capital structure, an investor might be betting on differential recovery of the more junior obligations. This could include taking differential positions in the senior and subordinate debt of a company (usually a financial institution), taking differential views on the recovery of a parent company CDS protection versus that of its financing arm and finally, taking differential view on a company's secured versus unsecured debt.

Obviously, the first step of an LGD trade is to assess the likelihood of default. If the likelihood of default post the analysis is non-existent, all one has to do is to write protection on the junior most credit risk – the subordinate debt, the debt of the financing arm or the

unsecured credit. On the other hand, if you are convinced that a credit event is likely to happen, the way to go is to look at which trade will have the highest differential between discount of bond price to face value and CDS premium.

The LGD analysis is relevant only when you are neither certain of default nor of non default. Then you neutralize the effect of PD and bet on LGD by writing protection on one of the securities and buying protection on the senior or the subordinate securities. As discussed earlier, we can estimate the LGD of the senior as well as subordinate debt. The ratio of the LGD of the senior debt to the LGD of the subordinate debt should equal the ratio of the CDS premium of the senior debt to the CDS protection of the subordinate debt. Obviously this will not be the ratio at which it will trade in the market because different market participants will have different LGD expectations. Since LGD cannot be precisely valued in advance, the trade of selling protection on one security and buying protection on the senior/subordinate tranche will make sense only if there is a fairly wide difference between the two CDS premia. In the case of trade involving a company and its finance subsidiary, close attention must be paid to the underlying credit story, the linkage between the company and its subsidiary and would the bankruptcy of the company mean bankruptcy of the subsidiary and vice versa, and if they both get into bankruptcy together, what the recoveries would be. Only then can one formulate a trade idea.

The Death Spiral Trade

In 2009, banks like Citi, JP Morgan and Bank of America came up with a silly innovation which linked the rates at which borrowers could borrow to their CDS premium. If the premium for CDS protection on the borrower went up, the company would have to shell out higher interest payments, further deteriorating the company's credit profile, which would cause the premium to go up further, which could cause interest payments to go up and so on.

The product is silly unless they were using the higher interest payments to buy further CDS protection. Anyway, what investors can do, whenever banks are making asses of themselves in this fashion, is to join the bandwagon and buy protection on vulnerable companies with already high leverage, and have a chunk of debt interest payments linked to CDS premium. Then they can participate in the fruits of the banks killing off companies which might have otherwise survived.

CDOs, Gaussian Copula, Base Correlation and other intellectual Self- Pleasuring

The idea behind a Collateralized Debt Obligation (CDO) investment is not new – it combines two ideas- investment in a portfolio of credits like a bank and participating in the tranching of credit risk as a securitization investor does. So, if you are investing in a tranche of a CDO, you need to know the following- the credit quality of the each of the constituent credits, the likely losses from the credit pool and the possibility of losses hitting the tranche under investment consideration. The other requirement for estimating potential losses of a CDO portfolio is default correlation among the different constituents of the CDO portfolio.

Unfortunately, it simply cannot be calculated in a sensible way.

The logical process for evaluating CDO tranches can also be used for credit basket products such as the Nth to default product. For instance, an investor who takes the risk of the first credit of a group of group of credits defaulting takes the risk of any one of the credits defaulting. The moment one credit of the group defaults, the investor in the first to default (FTD) product is wiped out. An investor taking the second to default risk (STD) is exposed to the risk of two entities defaulting in a basket of credits. He is unaffected if only one credit defaults, but is wiped out if two credits default.

The analytical framework for cash CDOs, where the underlying pool of credits is in the form of bonds and loans, is the same as in the case of synthetic CDOs, where the risks of the underlying credits are taken in the CDS format.

Quantitative wizards, who want a single number result, whether it is an option value or expected loss of a CDO tranche, resort to a lot of unedifying techniques to calculate the default correlation among the credits of a CDO or a credit basket. Broadly, they are all useless. Is it even a worthwhile course to pursue with the line of thought that default correlations can be calculated?

Can Default Correlation be at all calculated meaningfully?

Default correlation has an important role in evaluating how the credit risk of a pool of credits is distributed among the CDO tranches – if all the credits of a CDO portfolio are fully correlated, that means all the credits will either default together or survive together. In this case, there is no tranching of credit risk and the senior most tranche faces the same risk of losses as the junior most tranche. How about if the credits are totally uncorrelated?

Obviously, in this case, the junior most tranche takes a disproportionately high amount of credit risk. If any of the credits of the pool defaults the junior tranche takes the hit. The probability of one default occurring is the sum of the of the individual probability of default of each of the credits. The senior tranche is affected only if several credits default.

Obviously, these two scenarios of 100% default correlation and 0% default correlation, while interesting to demonstrate the importance of credit correlations in the assessment of tranche loss, are not real world scenarios.

One interesting thesis used in many correlation calculation methods is- do not worry about the default correlations among the different credits of a CDO. If there are 4 credits A, B, C,D in a CDO portfolio, even if you can calculate (which of course you can't) the default

correlation between A and B, between B and C, between C and D, between A and C, between B and D, between A and D and in addition the joint correlations among A,B,C, among B,C,D, among D,A,B among A,C,D, as well as among the 4 credits together, you don't need to do that- all you need to worry about is the correlation between the default of the company and the performance of the economy. All companies are correlated to the functioning of the economy to a greater or lesser extent. So, once you have the correlation to this common factor, you don't need to worry about correlation between individual credits.

This reasoning is not wholly sound. There are companies which default even when the economy does well on account of loss of market share due to taking their eye off the ball- whether by not keeping abreast of changes in technology or by foolish corporate action such as employing excessive leverage. Also, how do you get the correlation between default probability (which is very different from fall in earnings) of a company and the functioning of the economy? Even if you assume that the past track record of a company's response to economic changes will be repeated in future (which of course would not be true), what can you actually correlate? Correlation between EBIT margins and GDP change can be calculated, but that does not reflect changes in the capital structure of a firm. If the firm has gotten more geared, it is possible for the firm to default even with EBIT growth.

Getting around this challenge by correlating the performance of the company's stock to the broader market performance is logically wrong. Individual stock prices can zoom up or languish for a number of reasons that have nothing to do with default likelihood. A company with steady, but not growing earnings, might be able to service its debt without any problem, but might not excite shareholders because of limited growth opportunities- hence the share price might remain static or fall while broader markets move up- this does not mean the credit is risky. A company might go for a rights issue or issue additional equity which is creditor friendly but shareholder dilutive causing the share price to fall. Also, there have

been too many cases of a company's stock zooming up 12 months before the company defaulted on its debt. In a debt fuelled economy (high SDR) a leveraged company might present shareholders with high RoE opportunities if economic conditions remain placid- hence the high stock prices. But the moment the tide turns, it would be found to have been swimming naked. So, trying to estimate default correlations from stock performance is futile.

Our thoughts on CDO loss calculation

What then can a thoughtful credit investor do, who might feel a particular tranche of a CDO to be undervalued? How can he calculate the expected loss of a tranche? It is better to not even try fancy math when the parameter you want just cant be calculated. A simple way could be to divide the portfolio into three parts – credits that, based on sound credit analysis, will definitely not default (Category 1), credits that will definitely default (Category 2) and credits that might default (Category 3). It is the third category which requires careful attention. In the second step, based on your risk appetite and the extent of certainty (we are not calling it PD) based on your credit analysis, you need to move all the items in the third category to the first or second category. Obviously, an investor with a higher risk appetite and one can survive a larger amount of losses will move more items to category 1 than an investor with a lower risk appetite. Once you have done that, from the LGD calculation method discussed earlier, calculate the LGD of all the credits in category 2. The sum of those LGDs is your expectation of the loss that would be incurred on the credit portfolio. Once you have that number, you can evaluate whether the loss would touch the tranche under question, and the likelihood of getting your investment repaid in full. Finally, check whether the yield afforded is right vis-à-vis a comparable opportunity.

Obviously two individuals will not come up with the same expected loss- as that is a function of the investor's credit evaluation skills and his risk tolerance. If every one believed in the

value thrown up by a financial model, there will be no one who believes that the market is undervalued or overvalued and hence there would be no trading in financial assets.

In Finance, there are certain parameters which just cannot be calculated. Wisdom lies in accepting this fact. This could be because the parameters are not likely to stay fixed and the way they will change in future is uncertain, or because the broader drivers of the parameter value are uncertain. With these known unknowns, it is foolish to try and get some value based on some specious thesis. Using simple analytical reasoning might be a better approach and will yield a sensible answer, even if it is not exactly correct. As a great man said, it is better to be approximately right than to be precisely wrong.

Binomial Expansion Model for expected loss of a CDO Tranche: the perils of analytical scribbling

Rating agency Moody's devised the binomial expansion technique (BET) for calculating the expected losses of CDO tranches. Central to this technique is the so called "diversity score" concept. The objective is to transform a pool of credits having some correlation amongst them into a pool of uncorrelated credits, using D the diversity score of the portfolio. The Diversity score is supposed to measure the number of uncorrelated assets that would have the same loss distribution as the actual portfolio of correlated assets. For example, if a portfolio of 10 loans has a Diversity score of 7, this is supposed to mean that the 10 correlated loans have the same loss distribution as 7 uncorrelated loans. Each loan in the fictitious portfolio has the same par value (total pool par value divided by 7). Then the probability of j defaults in the pool is represented by the binomial formula of statistics

$$P_j = \frac{D! p^j (1-p)^{D-j}}{j!(D-j)!}$$

Here p is the weighted average PD of the pool calculated from ratings of the individual credits of the pool. Once you have the probability of 1,2,3 and up to 7 defaults from this

formula, you can calculate the expected losses if such a number of defaults occur. The final step is summing up the expected losses for each of the default scenarios-1, 2, 3, up to the number of diversity score.

The key parameter here is the Diversity Score, which acts as a proxy for correlation of the portfolio. How is it obtained? According to Moody's, it predominantly depends on the industry group of the company. However, the framework is as variance with common sense. Firstly, pigeonholing many companies into specific industries is no mean task. Secondly, just because two companies are in the same industry, it does not imply their default correlations are correlated. Several industries contain best performing and worst performing companies. We recognize only two groupings- good companies and bad companies. We had discussed earlier that the credit weakness of one company of an industry can benefit other companies. Sometimes, the strength of one company acts to the detriment of other companies of that industry on account of the financial arm-twisting possible. Intel and AMD might be regarded by Moody's to be in the same industry, but they have nothing else in common. One is a world champion; the other is a basket case.

Anyway, the so-called Diversity Score cannot be estimated scientifically. That being the case, why use sophisticated statistical techniques such as the binomial model when you have no clue on the parameters to be used in the model? A classic case of measuring with a micrometer and cutting with a hack saw if ever there was. MBIA's 2007 Form 10K describes in shameless detail how it used the BET model to value its CDO guarantee liabilities- little wonder the company went bust. We are absolutely curious if the users of the model at MBIA believed in the junk that was churned out of the model or if a group of people used it to generate short term fees and bonuses. Someday, we hope, the truth would be out- was fraud involved or was incompetence and below average intelligence at work.

To add zing to an already perverted model, Moody's has variations such as double binomial, triple binomial etc based on splitting the pool of assets into 2 or 3 parts. If you have certain number of mediocre mathematicians in your organization and you set them monthly targets such as "devise six models", be rest assured, they will deliver it. In fact, if set a target, they would even better the Queen of Hearts of Alice in Wonderland who believed in six impossible things before breakfast. Investors who fell for such guiles hook, line and sinker have no one to blame but themselves. Don't blame Moody's.

Gaussian Copula, Base Correlation and other Miscellaneous Junk in CDO Valuation

The driver of value of the different tranches of a CDO is the default correlation among the different credits of the underlying assets that back a CDO. The junior most tranche is long default correlation –the higher the correlation among the credits, the lower the percentage of the total risk of the CDO portfolio that is taken by the junior most tranche. As a corollary, the senior most tranche is short default correlation as the higher the correlation among the credits, the higher the percentage of total risk that is allocated to the senior tranche. If the underlying assets are of fairly low credit quality, the chances are that they would be perfectly correlated to the economy- that is they would probably all default together in a deteriorating environment, and would remove all differences between a junior tranche and a senior tranche.

In fields such as insurance, when aggregation of a number of risks needs to be done to get a single probability distribution function of risks, copula functions such as Gaussian copulas are used. We would not go into the details of these functions but suffice it is to say, copula functions are used in the life insurance industry for joint survival analysis such as the chance of a husband and a wife both dying within a certain period. Because the human life expectation along with joint survival does not change with time when considered over a large sample (other than the factor that people are living longer), such a framework makes sense. A life actuary will not use the copula function to price the joint survival of a husband and a wife

if he could access the genomes of the pair. Because it is illegal to do so, the actuary has to resort to this technique. In the case of credits, you have access to all the financial information and the credit story. Just like it is silly to use a Copula function in the case of joint survival if you have the genome information, it is silly to use it credit when you have full access to a corporation's DNA make-up.

Individual credit survival models, as we had stated earlier, are thoughtless buffoonery, only capable of being devised by someone with no real world credit experience. When one tries to combine the possibility of survival of two companies, through a correlation parameter, it compounds the folly. The investment banks need not look further than their own credit quality to judge the stupidity of the thesis of a correlation parameter that is stable. In 2006, when the credit boom was underway, the market was pricing Lehman Brothers and Goldman Sachs as if their credits were positively correlated- both were gushing out reported earnings (we say nothing about real earnings). In early 2008, nasty news was swirling around Lehman Brothers. Immediately, Lehman started losing business, businesses that were captured by Goldman Sachs. So, in good times, the correlation between two companies in a sector that is doing well is positively correlated- in bad times, the superior credit possibly gains market share as the inferior credit goes bust. And when you are pricing a tranche of a CDO, you have to look at the likely correlation until the credit exposures mature.

So, the puzzle here is two fold- 1) why have a survival function and complex modeling of the likely survival of an entity whose genomes you are legally permitted to map 2) why try to model a correlation when the correlation is absolutely unstable and possibly cannot be measured at a point in time.

A prominent variation of the Gaussian copula fraud in finance happened through "the base correlation model" devised by a JP Morgan analyst. Since the concerned analyst trained as an actuary, he should have known better. Or perhaps he did, but was tempted by the huge army

of conmen who were searching for a holy grail to fool the gullible and the unwary. The base correlation model does not satisfy even the basic things that commonsense dictates. For instance, even a child in the world of risk would know that the expected loss of the junior most tranche of a CDO would increase with the width of the tranche. The base correlation model does not even assure that.

The cold fusion fraud in physics did not last too long because you had to back your model with experimental proof then and there. The charlatans using base correlation could turn back and say that you used wrong parameters in the model. The lack of ability to disprove the nonsense then and there (other than with commonsense based arguments) was taken as proof. Taking something which cannot be proved, at face value, makes sense only in the case of Pascal's wager problems. Credit correlation does not fall in that category.

Useful Mathematics for Credit Analysis

There are some aspects of statistical analysis which are useful in credit analysis and other financial analysis. Because the usage is for specific purposes, most financial analysts can carry on jolly well without being trained in those skill sets as long as they are endowed with common sense, intellectual curiosity and a logical bent of mind.

Statistical Testing of Hypothesis

One useful usage of statistics is testing of hypothesis. From the pattern of numbers in a financial statement, an analyst might come up with a hypothesis that the nature of profits reported has changed post the occurrence of a certain event such as new regulatory reporting requirement etc. To test whether the hypothesis has any merit, one can conduct various statistical tests.

A beautiful example of hypothesis testing in Finance is presented by David Einhorn in his book "Fooling All of the People some of the Time". We would not go into the details here but

recommend interested readers to read it from the original book. Einhorn uses the “t test” to show that fraud was at play at Allied Capital’s reported numbers. But as we said earlier, a good analyst can perform as well without being trained in statistical analysis, through a deep understanding of the credit story.

The authors of the best selling book “Freakonomics” do something similar to prove cheating in the tests administered by the Chicago schools. The beauty of the analysis was that the proof was arrived at through logic based probability analysis without resorting to sophisticated statistical techniques.

Bayesian Probability- the common sense approach

Unfortunately, astrology is absolute nonsense – so a credit analyst can never be certain what will happen in the future- even if it is just the near future. The probability of the forecasted cash flow materializing is what determines if a company is suitable for credit financing. A very high probability makes credit financing possible. A less than high probability implies the equity financing, if any financing at all is possible, is the only viable option.

Bayesian probability is about estimating a probability given that a particular event has occurred/ will occur. That is the basis of common sense based financial analysis and financial projections. It can't be, as is done in most equity research reports, about assuming a particular growth rate in sales, costs, capital expenditure, as if the company operates in a vacuum, and about meaningless free cash flow projections. Bayesian analysis is about coming to conclusions on parameters such as sales given where we are in the business cycle, the SDR and where we are likely to move in terms of a company’s credit story. Once that is done, one can estimate how the company’s income statement and balance sheet will move. If it is given that the SDR is too high, chances are of an implosion, which might make capital expenditure less likely and financing more difficult to obtain as the sector which contributed

the most to SDR (whether households, corporations or the government) rebuilds its balance sheet and hence demands less of all discretionary goods and services.

Text Box: The evolution of Mathematics in Credit

When Harry Markowitz, in 1952, used the mean- variance technique to link the returns of a portfolio to the riskiness (as measured by the standard deviation of returns), he set the foundation of the use of mathematics in finance. This harmless pursuit formed the basis of the harm wreaked on the world of finance by the Value at Risk (VaR) mumbo jumbo. Warren Buffet has repeatedly stated that it is silly to measure risk by measuring standard deviation of past returns. Even if risk as measured by standard deviation of returns is the correct metric, standard deviation of past returns of a security is not likely to persist in the future due to changes in every company's investment story. When, added to this, the correlation between the returns of two securities is measured, the folly just gets compounded and what gets thrown up is modern portfolio theory and efficient frontiers.

The evolution in the use of Mathematics in finance reached new levels when Fischer Black and Myron Scholes published a formula for pricing European call options on the stock of a non dividend paying company in 1973. The formula links the value of a call option to the volatility of the company's stock price, the risk free interest rate, the current stock price and the exercise price of the option. Because the result of the mathematical differential equation using the capital asset pricing model (CAPM) throws in a simple and elegant solution for the price of a call option, it became wildly popular. The critics of the model range from the unbelievers of CAPM (which includes some of the finest investment minds) to those dismissive of the assumptions that go into making the differential equation tractable. The latter also point to the fact that the volatility parameter that needs to be fed into the equation practically renders it useless. It can also throw up a number of funny values for

non conventional situations. We will not go into details of this in this book, sparing it for another day.

Will the credit crisis of 2008 gradually put an end to absurd usage of mathematics in finance?

We are not sure. It is highly unlikely that the purveyors of junk will slither off quietly and join the ranks of the unemployed and unemployable. Much will depend on two things.

First, to what extent would the investors (the buy side) put up with this nonsense in future? If the buy side is content not applying too much brain power to the investment process, the current deplorable abuse of mathematics would only be a prelude to greater follies. The other factor would be to the extent to which regulators permit the use of leverage through levers such as capital adequacy requirements etc. Requirements for less use of leverage, calculated in an appropriate fashion, will render many absurd products unviable. That in turn would ring the death knell of “quantitative finance”.

Key takeaways from this Chapter

Financial Analysis is not an exact science. Because of too many moving parts which can be modeled only at the risk of coming to absurd conclusions, excessive use of mathematics, while useful for fooling the unwary and the gullible, is not useful for coming to useful conclusions. Hence, we have spoken of mathematicians dabbling in finance in less than stellar terms. In short, we have come to bury quantitative models, not to praise them. The correct approach to credit analysis is through the relentless use of common sense and a logical thought process which veers conclusions towards the probable while eschewing the improbable. Such a framework was used by the ancient Greek philosophers who laid the foundation of the development of social sciences.

Pricing credit derivatives using a stochastic framework is an absurdity that can be justified only by those who have a poor knowledge of what credit actually is. A creditor should not be

involved in any company or scheme whose earnings outcome is of a stochastic nature- that is strictly the domain of the venture capitalist (if at all it belongs to any investment realm).

When the underlying instrument- that is a credit instrument has to be analyzed on a default/no default framework and then priced at what the market can bear- using mathematics to price the derivatives linked to a credit instrument in a stochastic framework is as absurd as a square circle. Most mathematics people dabbling in credit have been rejects in their chosen field and have found in credit a play ground for fooling the quantitatively illiterate. Much like astrologers who flourish only in societies which have a superstitious bent of mind and where there is high tolerance for mumbo jumbo, quantitative financial analysts thrive in an environment of credulity and illogic.

Why did senior management at big investment banks permit such absurdities? There can only be two explanations- and the explanations are not mutually exclusive. Firstly, as demonstrably seen, most of the senior management have been Peter's Principle creatures – rising to their level of incompetence. Prior to the credit crisis, the CEOs of Merrill Lynch, Bear Stearns, Lehman Brothers and Citigroup were people who did not have the foggiest idea of what was happening and were perhaps (to be charitable to them) too shy to ask. The other explanation is if these techniques could be used to fool clients on the buy side such as the pension fund and insurance investment professionals and generate valuable fee based income, surely it would be churlish to ask questions and risk upsetting people who were coming up with such theories. If the PhD in Math was throwing up bizarre stuff which impressed the client, why would you want to tar and feather him when he might walk into the welcoming arms of another shop and take the client with him?

In conclusion, a commonsense based framework is the only way to look at credit. The use of mathematics in finance does not add to the sum total of human knowledge- it merely discredits it in the same way that astrology discredits astronomy among the ill-read.

Basically, in credit analysis, you can jump to one of three conclusions for a particular time horizon- a debtor will default, he will not default and he might default. If the credit analyst jumped to one of the first two conclusions his task is easy- he should either lend to the company or not lend to the company and if the derivatives market gives a pricing which is at variance with his conclusions, he can come up with a strategy to benefit from the mispricing such as by writing protection to gain high premium income or buying protection to benefit from a default. The credit analyst is in a tough position when he is not reasonably sure. What the creditor does under such a scenario is a function of his risk appetite. All he must ensure is that he does not venture into the equity domain for fixed income returns.

Chapter 11 Stories in Credit Analysis

The ancient Chinese believed that solar eclipses occur when a legendary celestial dragon devours the Sun. They also believed that this dragon attacks the Moon during lunar eclipses. Obviously the mythology had the causality of the eclipse wrong, so anything further the ancient Chinese had to say about eclipses could safely be ignored. Once someone does not understand the underlying cause of a happening, all further elucidation, elaboration and embellishment by that person on the topic should be a source of mirth, not enlightenment.

In the world of credit, there have been analysts holding forth conclusions on credit quality based on factors that ignore the causes of deterioration in credit quality while harping on those factors that don't. In Chapter 10, we pointed out the flaws of the FICO score methodology as it was not based on causality of credit strength and weakness. Linked to this flaw, is a second flaw whose gist is the Latin expression *post hoc ergo propter hoc* fallacy. Roughly translated in English, it means, just because one event occurred first, that does not mean it caused the second. This is sometimes called the "Rooster syndrome", for ascribing to the rooster crowing the cause for the rising of the sun. Falling home prices came before the spurt of delinquencies in the US residential mortgage sector. But the former did not cause the latter. If the economy had not tanked and unemployment hit double digits, on account of high household debt, people would not risk ruining their credit profiles by defaulting on home loans in response to falling home prices.

In this chapter we look at investment stories which have strong lessons for investors on account of identification of the key weaknesses of a credit story or failure to identify those weaknesses. The success or failure of each call was linked to the success/failure of individuals/ organizations that made the call to identify root causes and spot deterioration in root causes. We do not look at cases of frauds, particularly those that had a plausible credit

story but collapsed due to management thievery. Nor do we look at oft quoted examples of credit analysis mistakes such as Enron, World Com- these cases have been analyzed ad infinitum and at least some of the reports contain a thorough analysis of where creditors went wrong.

The overwhelming lesson from Credit Guru Benjamin Graham

The recurring theme in Benjamin Graham's writings is the "margin of safety" available in an investment opportunity. Even when he does not use the expression, in both his classics, "The Intelligent Investor" and "Security Analysis", he clearly implies that margin of safety is what separates an investment from speculation. For a creditor, margin of safety is the central tenet. What if the unit sale prices fall due to increased competition? What if costs go up? Does the company's capital structure and the earnings profile have a margin of safety built in such that a significant change in operating earnings will not cause a default on bonds? In the world of equity, the margin of safety refers to the cushion available in the current stock valuation which causes the stock to seem undervalued vis-à-vis current earnings. Even if the earnings fall tomorrow, because the stocks were bought at a conservative valuation, the investor can live with the lower earnings.

For a creditor, as Ben Graham puts it, "the function of margin of safety is in essence that of rendering unnecessary an accurate estimate of the future". Since accurate estimate of the future is beyond the realm of most human beings, the margin of safety is a must. The projected income statement has a lot of "ifs and buts" which margin of safety tends to mitigate. Ben Graham also talks about the margin of safety in the value of an enterprise vis-à-vis the amount of its outstanding debt. This is what provides a cushion for recovery in case the primary margin of safety – that of the earnings- fails and the returns continuously fall below the cost of capital employed. Structures like LBOs, second lien loans, etc fail to

provide a margin of safety on the earnings front as well on the asset valuation front. That is what makes these investments speculative.

Rating Agencies: ineptitude rather than malice the cause of analytical failures

To paraphrase what the comic writer PG Wodehouse said in a different context- two heads are better than one, even if one of the heads happens to be that of a rating agency. A credit investor should use a rating agency's "opinion" merely to confirm his own analysis rather than as an independent fountain of thought. If the rating agency is more optimistic in its credit opinion of a sovereign or a corporate, it should not be given much weight as chances are pretty high that either the rating analyst (and the rating committee) went along with groupthink and conventional wisdom or the agency did not feel the need to be heroic and annoy a big fee paying client. On the other hand, if the rating agency's views are more conservative than one's own, the credit investor should in his analysis be able to justify with clear facts and figures why he considers the rating view unjustified- else he should go along with the agency view. A credit investor who goes purely by a rating agency opinion can best be described by the words of Obi-Wan Kenobi of Star Wars fame- "who is the worse fool- the fool, or those who follow him?"

"Never ascribe to malice that which is adequately explained by incompetence" could, in a gist be the judgment on the role of the rating agencies during the credit crisis that started in 2007. Yes, in some cases corruption could be alleged, but the thought and analytical process in a credit rating agency are so oriented to accepted wisdom and narrowness of application of the mind, that the repeated failures of sizeable size of the agencies should come as no surprise. The narrowness of vision makes the agencies look at the entity being analyzed on a standalone basis, unaffected by linkages to other entities. Whether the published numbers of a company/country pass the test of reasonability and sustainability is not something that worries the agencies unduly. The analytical process is like that of a starfish with a nervous

system but no brain. The nervous system of a starfish is therefore located in the nerve ring around its [mouth](#), from which a radial nerve branches off and extends to each arm. It is this nervous system that helps the starfish find its [food](#), find a mate, and feed. Obviously, in such an organism, the nervous system has very little role other than to respond to every external stimuli (much like a technical analyst) and there is very little pondering on changed circumstances.

It is true that the agencies have a warm and fuzzy feeling about the issuers who pay them to do the credit rating exercise- but that is not the leading reason for the repeated failure of the agencies to call the turn in credit quality. But flawed methodology and doing credit analysis through a cook book process ensures that the agencies will fail even if they are paid for by investors and not issuers. Perhaps, if and when they are paid by investors, they might be more conservative- but being conservative is no substitute for razor sharp analysis. Being overly conservative would only ensure that investors would have lost some good investment opportunities. Even when a rating analysis has been done properly, the analytical reports are so filled with caveats and subjunctives to be of use to a credit investor looking to deploy funds.

The big problem for international credit investors is rating agencies elsewhere have adopted the same flawed methodologies of Moody's and S&P. For instance, China's Dagong Global Credit Agency proudly announces in its website that it follows Moody's "seven pillar approach" for rating banks. It seems word did not reach beyond the bamboo curtain that the methodology could not capture any of the bank failures. The agency had the following note on its website –"Founded in 1994, Dagong Global Credit Rating Agency Company Ltd is the only domestic credit rating agency established upon the joint approval of the People's Bank of China and the former State Economic & Trade Commission". Good bye free thought.

Hello Chairman Mao.

S&P's California Credit Rating History: four decades of momentum based Credit Analysis

S&P's credit rating history of the US state of California would have done a technical analyst and other momentum players proud but would make a credit analyst hang his head in shame. In 1968, at the peak of a stock market bubble, S&P rated California AAA. In the 1970s, as elsewhere in the US, the economy tanked post the oil crisis and the inflationary bubble. In 1980, at the darkest hour of the cycle, just before the break of dawn, S&P downgraded the general obligation credit rating of California to AA+. In 1983, just as the economy was turning into full speed, but before tax revenue collection had stabilized, California was downgraded further to AA. In 1985, as the tax collection from income as well as property went up, S&P raised California's credit rating to AA+. As the economy continued to do well and the pension obligations looked fully funded, in 1986, California's rating was elevated to AAA- a rating it had lost six years earlier.

From 1988, as the savings and loan bubble cracked and property tax collection wobbled, the state's finances worsened. As the recession swept the US and tax revenues fell, S&P downgraded California by two notches to AA in 1991. When there was some impasse during the 1992 state budget discussion, S&P further downgraded California to A+. Then the economy picked up, but initially without creating jobs and hence generating income tax. In 1994, the state was downgraded to a single-A credit rating. As the economy started booming and the dot com era started, the rating was upgraded to A+. Close to the peak of the dot com bubble, in 1999, S&P raised the credit rating to AA-. Just post the peak of the bubble, when tax collections continued to zoom with unemployment falling to record lows, and politicians were making generous promises which had to be kept in the future, the rating was increased to AA (in September 2000). In January of the next year itself, as tax collections wobbled again in the post dot com era, the rating was put on watch with negative implication. In April 2001, the rating was downgraded by two notches to A+. In December 2002, the rating

was further downgraded to A. In July 2003, at the trough of the business cycle, the rating was cut by three notches to BBB. As the Alan Greenspan induced housing bubble began, in August 2004, California's rating was raised to A, which was further raised to A+ in the middle of 2006. As the credit crisis took shape, the rating was downgraded in February 2009 to A. In September 2009, California's Attorney General launched an investigation into the role the rating agencies played during the crisis. Blaise Pascal had said that the only shame was to have none. The management of S&P fit that definition of shamelessness to a tee when it continued with its bluster on California's credit quality without apologizing for the error of its ways.

Everything that S&P did, any grade 4 student could have done by graphing GDP growth versus credit rating. There was practically no serious analysis other than to look at the state budget deficit and the tax collection. The fact that taxes, whether income or property taxes will go up when a business cycle looks up and vice versa is a fact of life. And in a democracy, politicians will almost always make more promises than is prudent when the times are good. They will also indulge in pointless politicking and non action when the times are tough. What does a potential investor of California's bonds really need to answer, when the going is tough? He needs to know only two things- will California drive away its hi-tech businesses on account of its onerous regulations and taxation and will California rather raise taxes than cut spending when the budget has a severe gap. If the answer to both questions is no, then there is no need to worry. When the cycle turns, the state's knowledge intensive businesses will churn out enough taxes – whether corporate, personal, capital gains or property. That should take care of debt servicing. If the answer is yes, then the state will get into a downward spiral from which it will not recover even when the economy recovers. Even when the economy recovers, taxation will not be high enough to support the state's universities, which are a big source of resources for the knowledge economy. If the state

would rather cut spending on its universities instead of raising taxes, the knowledge ecosystem will crumble and with that, the state's credit story. If the taxes do not keep up, civic amenities will be neglected, which will induce more qualified personnel to leave the state and seek livelihood elsewhere.

The key lesson from the episode is unless one is looking at the bigger picture and the credit story, looking at certain metrics as if they are the Holy Grail will lead one nowhere. There is always a key question, a key driver in any credit story. Identifying that is the crux of evaluating credit quality. So, in the case of California, we would not be paying much attention to what the state officials say at press conferences- despite the fact that we are evaluating the government rating. We would be more interested in knowing what the CEOs of Silicon Valley are planning. Are they intimidated by the prospects of high tax payouts and high costs of doing business in California or do they think that the benefits of being based in California outweigh the costs involved? What would be the pain point at which they would say they have had enough? Would they move if the governor of Texas called up with special incentives and tax breaks? Do they think that the ecosystem of venture capital and a skilled labor force can be replicated elsewhere? The answers to those questions would for us suffice to evaluate California's credit quality. If California continues to produce innovative companies or companies continue to flock there, the demographic dividend, the increased construction activity, the capital gains from the wealth generated etc would take care of debt servicing. Momentum based credit opinions are merely haphazard forays into intellectual activity which are of no use to those who need to put real money to work.

Lessons from Short Sellers

The successful short seller is one who analyzes companies with the rigor of a credit analyst but takes on a bit of venture risk by betting that his timing of the imminent demise of a company is correct. The creditor, if after analyzing a company deems it uncreditworthy,

rejects the credit proposal and moves on. The short seller takes the extra step- if the company is not worthy of credit, its stock price should reflect that fact. Of course, the creditor can also take an extra step by buying long dated credit protection on the entity he expects would default. The timing risk taken by the short seller can get him into trouble even if his underlying premise is right. If he reacts too soon, he can be ruined. Many short sellers lost their shirt shorting dot com companies without a whiff of a business model too early. But when short sellers are shorting a stock, a creditor to the company should re-visit his analysis. We are not talking here about short sellers who short a stock in the morning and cover their position by the end of the day. We are talking about short sellers, who after deep analysis create a position and hold on to it until their conviction pays off. The short sellers we are referring to are those who, after shorting a stock, present to the market a clear headed analysis covering issues ranging from the underlying corporate story to the company's reported financials.

Short sellers short stocks for two honest reasons. The first reason could be they believe that the stock they plan to short is overvalued, that is, the stock price over estimates likely future earnings. The second reason could be that they do not believe the past and current earnings of the company- that is they doubt the accounting quality of the company. Short sellers identify questionable financial reporting practices before public disclosure and restatement of earnings by the company. It is short selling for the second reason that should be a bigger trigger for credit analyst action. The credit analyst needs to convince himself that the past earnings are alright and that the short seller is mistaken. Else he should be recommending getting out of the credit.

Academic studies have confirmed that short sellers facilitate in the efficient allocation of scarce resources in an economy. In a study, Edward Ketz of the Pennsylvania State University mentions that short sellers are the most knowledgeable experts on accounting and

finance and the most extensive users of company financial statements. It is hence no surprise that they were the first to unearth accounting problems at Enron, World Com, Cendant, Waste Management, Microstrategy and many others.

Of course, there are numerous non honest reasons for shorting a stock- those should not bother the creditor too much unless they create a self fulfilling prophecy by draining the company's access to liquidity. Honest management, in response to short selling must communicate clearly with the market on the reasons why the short seller is mistaken and why the short seller is on a fishing expedition. If the communication is of a poor quality and management indulges in name calling, it is prudent to fear the worst.

Short sellers have had a far superior track record of signaling credit trouble ahead than credit rating agencies. For example, fiber-optic network operator, Global Crossing Inc was rated investment grade by the rating agencies a few months before it defaulted on its loans. The company showed high revenue from so called capacity swaps and indefeasible rights of use (IRUs) with competitors such as Qwest Communications. Capacity swaps involved the company selling its excess network capacity to a competitor and the competitor selling his excess capacity to the company. IRUs sold by the company permit the customer (usually another network operator) the unfettered use of capacity over time. GAAP required companies to record the revenue generated by the IRU over the life of the contract, as it was possible for the customer to go bust, which would render meaningless the revenues that were booked upfront. Global Crossing confused investors by providing a mishmash of data, which presented revenues as per GAAP norms as well as upfront booking of revenues from IRUs. The rating agencies, who seldom understand the credit story, did not seem to be bothered by the revenue generated from the capacity swaps and IRUs- but short sellers understood the implications of the creative though not necessarily illegal accounting. Stripped of the crutches from the padded earnings, the company did not have a leg to stand on and filed for

bankruptcy. Post bankruptcy, the company was taken over by Asian telecom majors, who wiped out the then current shareholders.

A variation of the IRU theme was American contractor Halliburton improperly booking \$ 100 million (in a year) in annual construction cost overruns before the customers agreed to pay for them. The cost over runs could jolly well be on account of contractor incompetence- in which case the customers would not have to pay for the cost overruns. Only when the customer approves of the cost overrun does this get translated into revenues for the contractor.

David Einhorn shorts Moody's and McGraw Hill in 2009 after the Lehman home run in 2008

An investor who, after critical and sound analysis, has had some superb investment calls is David Einhorn of Greenlight Capital. Few hedge funds base their investment calls on clear headed analysis like Einhorn. Most are liquidity phenomena, which sprout when investors beg to be parted of their money and desire to be participants in hare brained schemes. When the money goes in smoke, investors are silly to blame the hedge fund manager (unless there was fraud involved) instead of the man in the mirror. Very few investment strategies are based on conscious thought- most are products of group think and cheap money. The biggest task for an investor is to identify if a money manager is a fool, a rascal or neither- all the other investment issues can take care of themselves in the long run. Allegedly, hedge funds are for high net worth individuals who created their wealth elsewhere.

In this murky world of incompetence and groupthink, there are a few shining lights like Einhorn. His book "Fooling Some of the people All of the Time" is a must read for investors who base their investment more on analysis and less on a wing and a prayer and the hope of a greater fool creeping in the horizon to help offload one's speculative forays. The book helps an investor understand that when managements start playing nasty, creditors are not in safe

hands. As we mentioned earlier, there can be only one rational response from a management against a short seller- composed reply which counteracts the short seller point of view with facts and figures. When management provides hearsay as evidence, it implies that the management does not have the requisite facts to counteract the short seller.

On September 15 2008, it was easy for all to proclaim that Lehman Brothers was a house of cards run by truly incompetent imbeciles, and peopled by crooks who were prepared to commit fraud for securing bonuses. To say that many months before that day required intellectual conviction and faith in one's analysis- after all one was betting against an institution that was more than 150 years old that had survived a civil war, two world wars, a depression and numerous vicissitudes of market movements. The lesson for a credit analyst, when he analyses a company, is to start on a clean slate and not be awed by a company's illustrious past. Einhorn, ever the analyst, was not awed by the company or its CEO making noises about conspiracies (when a CEO talks about conspiracy theories, it is ominous. After all, if there was conspiracy, the CEO could put facts and figures on the table to convince stakeholders, announce a share buyback and trap the short sellers).

Aspiring financial analysts must read Einhorn's short but superb presentation at the Ira W. Sohn Investment Research Conference on the 21st of May 2008 on "Accounting Ingenuity". The gist of his note was that Lehman's assets were wildly overstated. Writedown had not been taken in sufficient quantity on account of junk masquerading as Level 3 assets. We had stated in Chapter 4 that a creditor has no business being involved with a financial institution whose asset valuation cannot be fixed with reasonable certainty (Einhorn uses the expression "don't ask- don't tell method of security valuation" in a different note). Einhorn talks about Lehman management's shenanigans, moving assets from Level 2 to Level 3 category with gay abandon. He calls their bonds 20/90 bonds- 20 bid 90 offered. Of course, when valued with a mathematical model, the same bond would show a value of 110, and hence it would be

carried at 100 on the books (just to be conservative!). When Einhorn contacted the company, they did not come up with clear answers but were evasive (another sign of trouble). Finally, when Lehman gave up its ghost on the 15th of September, Einhorn deservedly made a fortune on the back of an investment thesis built on analysis and not wishful thinking. Almost a year before disaster struck, Einhorn predicted that the US tax-payers may have to pay – another superb call.

Finally, in 2009, Einhorn shorted Moody's and McGraw Hill, the owner of S&P. He did not short S&P till September 2009, despite the fact that the grim future of the company was evident much earlier. The reason was that until September 2009, the rating agencies could get away from the fruits of their incompetence or worse by claiming that their ratings were merely opinions which were protected by US free speech rights. So, their business story, though wobbly, was still intact. Einhorn had been critical of the rating agencies for several years, but did not rush to short the stock until the business story was over. He shorted Moody's earlier, because the Moody's business story rested almost entirely on structured finance revenues and that game was up with the Lehman bankruptcy. Shorting the rating agencies earlier, say in 2007, was risky because Basel II had put an additional source of income at the rating agencies' disposal. By requiring bank capital requirements to be based on external credit ratings of their loan exposures, even companies that stayed outside the rating agencies claws could not escape.

In an article in 2007, Einhorn had mentioned that Moody's operating margin of 54% was not sustainable the moment there is any change in the business model built around a government sanctioned oligopoly. The Basel II banking regulators are under pressure to stop perpetuating privileges accorded to rating agency opinion.

In September 2009 a US judge put at jeopardy the US based rating agencies' business model. The judge made it clear that rating agencies could no longer hide behind the burqua of free

speech rights. Another judge had earlier stated that rating agencies lost their free speech rights when they were involved in structuring transactions, which was the case in rating securitization transactions. In addition, the worthies of various countries had called for reforms in the financial sector. Even if most of this remains all bark and no bite, even a small change in the business model will be severe for the rating agencies. The great Warren Buffet continued to be a Moody's shareholder into 2009- perhaps because he was slow to realize that the moat around Moody's that lasted his whole lifetime was collapsing.

In 2009, Einhorn bought interest rate options that will yield profits when the US government sanctioned money printing game reaches its logical denouement. Einhorn is also long on gold as he expects the short term thinking of the Obama administration to soon come home to roost. It would be rash to bet against Einhorn's formidable intellect on that trade or any other without thorough analysis. When a credit analyst finds himself reaching a positive conclusion about a company where investors like Einhorn are short, he should revisit his analysis. And revisit it again. But if Buffett can be wrong sometimes, so can Einhorn on a particular trade. So there is no need to get cowed down merely by reputations, either of individual, corporations or principalities. If reputation were all that mattered, Lehman Brothers would still be around.

Jim Chanos takes on Maquarie Bank's suspect Business Model

We had mentioned in Chapter 1 that it does not make sense to be participants in lending to companies which run huge asset liability mismatch risk. When this is accompanied by a heavy dose of gearing, which brings an LBO risk dimension to the tenure mismatch risk, the business model does not make sense for shareholders either. It might make considerable sense to employees who might collect huge bonuses when short term returns mask long term liabilities. If on top of this there is a flawed incentive structure which encourages doing deals for the heck of it, fundamental investors just don't stand a chance.

Macquarie bank is an Australian financial institution that runs some famous infrastructure funds. These infrastructure funds are sometimes listed on the world's stock exchanges and sometimes not. These funds are sold to third party investors. So, if the infrastructure funds do badly, Macquarie, at least in the short term, is unaffected. The bank has three revenue streams from the infrastructure funds. Firstly, the bank charges the infrastructure funds fees for origination of an asset for investment. Then, the bank charges a fee for investment management of the infrastructure assets passed on to the funds. Finally, the bank charges a fee for disposal of the asset, hopefully at a profit.

The question a credit investor might ask is if all the risks are borne by the foolish investors of the infrastructure funds, why should there be any risk to the investor in Macquarie debt? The answer is that the company stock price and gearing levels are based on a certain earnings expectation. If the incomes from the funds collapse, so would Macquarie's share price and its levered structure. After all, for the fiscal year ended March 31st 2007, of Macquarie's net profit of A\$ 1.5 billion, \$ 785 million came from base management fee from the funds. (This does not include origination and asset disposal fees. So, the whole business model rested on keeping the game going).

Continual earnings from the infrastructure funds rest more on aspirations than ground level analysis because of the shaky way the whole edifice was built. The funds used leverage when they bought infrastructure assets- in some cases as much as 85% of the purchase of an asset was funded by debt. The funds then continually revalued the assets, which permit them to take on even more debt. The increased debt was used for paying dividend to fund holders. In the short run, this lead to huge satisfaction for the investors in the funds. But if revenue from the asset slipped a bit, debt servicing becomes difficult on account of the gearing employed. So, the fund investors were being paid not out of asset income but out of debt

raised by revaluing the assets. Clearly, the structure had more than a passing resemblance to sub prime mortgages.

Next, even more perversely, it made sense for Macquarie to overpay for the assets that go into the infrastructure funds. Since the base investment management fees are linked to assets under management, the higher the asset valuation, the greater the fees. There could be more perverted incentive structures in the financial world, but they would be hard to locate. Little wonder that when bids for infrastructure assets took place, the Macquarie funds would usually bid much higher than the second highest bidder.

For a credit investor, dangers lurked at two levels- one at the individual asset level on account of overpayment for assets and the gearing employed. The second danger occurred at the Macquarie debt level because when the flawed business model is exposed, the earnings required for debt servicing would go for a toss.

Enter Jim Chanos, one of the shining stars of the hedge fund industry. He quickly identified the flawed business model of the company. In May 2007, he announced that he had shorted Macquarie's stock, having correctly identified that a company that thrives on cheap credit would be imperiled when credit conditions tightened. Jim Chanos was one of the first investors to spot trouble at Enron and made a pile by shorting the "crooked E". Chanos, of course did not suggest that Macquarie management was as corrupt as Enron's. When Chanos shorted Macquarie, the management came up with counter reasons that were so pathetic that even those sitting on the sidelines might have been tempted to short the stock.

In late 2004, Macquarie was involved in the first privatization of a toll road in the US, the Chicago Skyway, where its bid of \$1.8 billion was almost \$ 1 billion higher than the next bid. It made great sense for Macquarie to bid \$1.8 billion, whether that had anything to do with fundamental valuation of the asset. Firstly, it ensured that the bid was won and the bid

success fee could be obtained from investors. A lost bid meant foregone asset management fees. Secondly, for Macquarie, it made more sense to manage a \$1.8 billion asset than a \$ 1 billion asset on account of the fees involved. One of the Australian newspapers had called Macquarie's business model "quite possibly the most efficient method of legally relieving investors of their money ever conceived". Unlike in the case of a normal asset, where the debt used for creating the asset gradually comes down, debt from Macquarie's fund assets goes up as assets were revalued and more debt taken to pay fund holders dividends. For the unit holders, as long as the Ponzi scheme did not stop too soon, the returns would be attractive as the risks got more and more passed on to the creditors. From the fund investor point of view, thank goodness for limited liability- if after payouts to shareholders the funds were unable to repay debt, tough luck for creditors- they could cling on to the overvalued assets which they so foolishly financed.

When the credit crisis finally hit in September 2008, Macquarie's share price collapsed. It did look up when the world's equity assets zoomed up after March 2009 on "central bank quantitative easing". The hare brained easy money policy bailed out players like Macquarie but hit ordinary savers on account of low interest rates. Someone summed up the business model thus- they make an unsavory product but as long as people buy it, they make money. The trouble with unsavory products is that sooner or later reality strikes- so you cant have a business model built around peddling unsavory products. Though Jim Chanos was not the first to point out the flaws in the company's business model, he was certainly the first to point out the flaws in clear headed terms. For the creditor, the lesson is that a flawed business model does not support a credit story.

Pershing Square shorts MBIA after reasoned estimate of credit losses from Structured Finance

William Ackman's letter to the New York insurance regulator and various worthies of the SEC on the 30th of January 2008 is a classic case of thorough analysis that short sellers must

put forth if they are not to be accused of spreading baseless rumors about a company. Once that is done, the responsibility for countering the points raised falls squarely on the shoulders of the company management. If management comes up with clear focused answers, creditors must ignore the short seller. If the answers look evasive, or if the CEO looks nervous as if caught doing something unmentionable, there must a fire behind the smoke.

Ackman's hedge fund Pershing Square has been involved in several successful short trades after detailed analysis. In the case of the monoline insurers, Ackman had also bought credit default swap protection on MBIA. If only the rating agencies had not shoved their ostrich heads into the sand and paid attention to what Ackman had been saying for some time, they would not have looked like priceless nincompoops as they did in the case of the monoline insurers. And they had absolutely no excuse- unlike Ackman they did have direct access to the insurers. They could have exactly estimated the impact of the credit enhancement that monoline insurers were providing to structured finance transactions and estimated the balance sheet impact. Ackman had to use a lot of analytical extrapolations based on market loss experience on structured finance deals to estimate the losses at bond insurers MBIA and Ambac as he did not know which deals these companies had insured. And when it came to stuff like CDO squared and other crap, the lack of direct access was a real handicap. So, all the more credit to Ackman for reasoning out the expected losses at the insurers. Around the time that Ackman wrote the letter, the rating agencies were just beginning to downgrade the insurers from AAA. Ackman, on the other hand had been predicting disaster at MBIA since 2002. Why, oh why can't the rating agencies listen to others if they lack the intellectual wherewithal to figure it out themselves? The least the MBIA analyst at S&P should have done was revisit his analysis once he came to know of a short position, and see if he had missed out something.

Ackman's letter listed out the methodology he had adopted for estimating MBIA's losses. His was not a macro big picture analysis- he estimated losses from RMBS portfolios by distinguishing among the different types- sub prime, mid prime, Alt-A and prime. He looked at the CDOs and CDO squared exposures which contained those hazardous assets. He made an interesting statement in the analysis- "if the bond insurers truly believed that greater disclosure would help confirm the veracity of their loss estimates, one would have expected them to provide full transparency to the market place". Precisely. We will not go into the methodology Ackman adopted – interested readers can readily read the letter themselves. Suffice it is to say that the methodology satisfied the requirement of being logical.

There is one point we want to highlight because rating agencies and others fall victim to this circular reasoning- Ackman mentions that MBIA's losses could be higher than his estimate because it does not factor in the questionable creditworthiness of the reinsurers with whom MBIA insured. The reinsurers themselves were holding on to a pile of junk assets (rated AAA because they were guaranteed by the primary insurers) in their investment portfolio. So, when the reinsurer's creditworthiness was suspect (because of his suspect investment portfolio), so was the estimate of the primary insurer's losses, because reinsurance recoveries were likely to be poor when the reinsurer's claim paying resources were invested in junk. The reinsurers have such incestuous relationship amongst themselves that a junk investment portfolio at one counterparty sickens the whole system. The rating agencies just look at the rating of the reinsurer, while ignoring these cross relationships. Unless the reinsurance is with a counterparty like Berkshire Hathaway, credit analysts should be watchful about the credit they give for reinsurance risk off-loading. Else, they might find themselves giving credit for what are in effect the insurance business' Level 3 assets.

David Tice benefits from Tyco's M&A accounting shenanigans

Always worry about companies whose previous year earnings cannot be readily compared with current year earnings. This is particularly a fact of life in companies which involve themselves frequently in M&A activities. Also, we would get suspicious about companies which reclassify the different items of earnings and expenses under different heads every year to reduce comparability. An allied lesson is to look with a jaundiced eye at companies that regularly take "one time charges". One time charges are capital destroying in nature and must be accounted for (and not ignored) in return on capital employed calculations.

Tyco, whose CEO Dennis Kozlowski is now in jail, was a \$ 3 billion turnover company when Kozlowski took over as CEO. It was predominantly in the business of making fire sprinkler systems. By 2001, thanks to hundreds of acquisitions, the company's annual turnover had risen to \$36 billion. The CEO's mantra was that he was bringing Tyco's superior management skills to bear on acquired companies. Post acquisition, the story went, the companies reported sharply improved earnings on the back of improved operating performance. The few smart investment bankers who would have noticed that the story did not fit did not speak up- obviously they did not want to kill the bird that laid golden eggs in the form of M&A advisory fees.

David Tice is a short seller par excellence. He bases his short positions on identifying companies indulging in accounting trickery. He was involved in shorting companies such as Sunbeam and Enron after identifying their accounting jugglery. Early in his career, he started publishing research under the title- Behind the Numbers- an apt name for a report so focused on aggressive accounting and their problems.

Tice expressed deep doubts about the way Tyco was accounting for mergers, even while a raging bull run powered by dot com stocks was on. Short selling during a bull market is extra

dangerous as momentum almost always trumps common sense. Tyco, before acquisitions were consummated, would cause the acquired company to take an abnormally high restructuring reserve to make that company appear to be in a worse financial condition than it actually was. Post acquisition, Tyco would reverse the reserve, causing the acquired company's profits to shoot up. This is referred to in accounting circles as "spring loading".

In addition, before closing a transaction, the company would cause the acquired company to accelerate payments for expenses and delay the recognition of revenue. In the first year, post the completion of the acquisition, this would cause Tyco's earnings to improve dramatically. Again, it creates the illusion that Tyco's management had worked wonders for the company that had been acquired. The most amusing bit about the story occurred in early 2002 when the jailbird CEO declared "A lot of companies are going to suffer for Enron's sins". Further, almost to the day Tyco went bankrupt, the company went on buying full page advertisements to campaign against short selling. Creditors would do well to see the content of management advertisements- not their length.

Because of the mess it creates, creditors need to be wary of companies that frequently restructure their accounts or operations on account of M&A. It is difficult to understand how companies in the throes of an M&A orgy were ever trusted by investors- credit or equity. Even a single M&A transaction has low probability of success. Multiple M&A is simply testing the patience of fate. And the enormous goodwill in Tyco's books on account of severely overpaying for companies were to act as catalyst for further trouble- the writedown of the goodwill drove the company to be in violation of its covenants. That was the last straw that tipped the company over.

John Paulson shorts the ABX Index to take advantage of worsening subprime fundamentals

Short sale of an index reflects negative view on an industry. It is not about accounting pitfalls or management inadequacies at a particular company. It would provide a credit analyst important insights if he finds sharp downward movement in the price of certain equity as well as fixed income indices, which are out of sync with broader market indicators. Prices of securities linked to indices might be going down because of two reasons- naked shorting or shorting by investors having long positions in the underlying indices hedging their bets. Both are worthy of notice by a credit analyst. Shorting of an index could be more potent in information content- while short sale of a stock by an investor, no matter how illustrious, reflects the view of a single investor on a single company, the fall in value of an index reflects the views of a wider investing fraternity on a particular industry.

The pace at which the US subprime mortgage market blew up since the beginning of 2007 was truly spectacular like a supernova. However, very few people realized how deeply flawed mortgage products like second lien home loans, negative amortization loans, Alt-A loans were until it was way too late. Smart investors of course realized this earlier than others.

However, it can be dangerous to short an index too early- as they say a market can stay irrational longer than you can stay solvent. And the extent to which the market could stay irrational depended on the ability of the household sector to take on more debt. The day that ability was impaired, the game would be up and the structure would collapse. In an era of fraud loans such as Alt-A loans, a household could take on far more debt than would have been possible if there were sensible metrics for assessing debt servicing ability. In an Alt-A loan, debt servicing ability was merely a distraction. So, one just can't call the tops for household debt. Household debt was neither capped by ability to repay or the value of collateral. The gospel of Matthew talks about a borrower whose wife and kids were

auctioned off due to his inability to repay a loan- Alt-A loans would not have flourished in that environment.

The ABX subprime index measured the cost of insuring against defaults of subprime bonds. The index tracked 20 asset backed bonds with a BBB credit rating. Ace hedge fund manager John Paulson made a pile by accurately calling trouble in the US sub-prime mortgage sector. Whenever a short seller creates a position, it makes sense for him to communicate with the market as soon as possible after creating the position so that he can quickly profit from the trade (instead of having funds locked up in margins). So, John Paulson, the moment he created the position started coming with reasoned arguments why he thought the sector was junk. It is not possible for a credit analyst to be aware of happenings in every sector (for instance if you were not tracking the subprime sector, you would not be aware of the sector's egregious practices- all you would know is that household debt is getting way out of control thus signaling trouble). So, once a short seller communicates some clearly articulated view and the credit analyst, if convinced about the articulation, he should formulate plan B about having to deal with exposures that contradict the view.

After having made a killing in the ABX BBB short trade, Paulson appeared before the US House of Representatives Committee on Oversight and Government Reform. At the meeting, he presented a Goldman Sachs chart showing the movement in ABX BBB prices. The chart showed that in late 2006, the index started falling. But in February 2007, the index fell by 20%. That was the last warning for the creditor. By mid 2008, the index had fallen by 80%. So, if you missed the wake-up call from the index in early 2007, the game was up for you.

Stories in Investment Banking Credit calls

Credit calls from research arms of investment banking firms are as conflicted as those of credit rating agencies. An unfavorable research report on a company would translate into the

company ignoring the investment bank for fund raising and M&A mandates. So, it is seldom that you will get a worthwhile report from an investment bank. A research report can get positively insidious when a bright analyst builds a case for an investment based on specious arguments that cannot be easily seen through. Examples of such evil reports were all too evident during the dot com era.

Another reason for ignoring such reports is that over the last decade, investment banks have gradually replaced sensible credit analysis with pseudo analysis in the form of quantitative credit research. Quantitative analysis is in practice useful only while analyzing homogenous pools of retail assets. Actuarial techniques work in that case. They certainly do not work in the analysis of corporate credit as we had discussed in Chapter 10. Just like an astrologer taking his client for a ride by talking about exotic stuff on the location and motion of planets, investment banks use advanced mathematical techniques which have no relevance for credit analysis to fool clients. This works particularly well for the investment bank if the pseudo techniques are used to peddle products which have a high fee component.

Finally, these days, investment banking credit research is about generating trade ideas (which of course generates brokerage income) and less about analyzing a credit. Trading strategy follows from the credit analysis- you would not use the same strategy for a high risk credit as for a low risk credit. So, getting into trading strategies before getting the credit analysis done is akin to putting the horse behind the carriage. Credit analysis has to drive trade strategies and not vice versa. The trading strategies can range from the hilariously puerile (we see strategies like Debt to EBITDA of company A is lower than that of company B, but they are trading at the same spread- so short A and go long B) to extraordinarily complicated (involving the use of advanced mathematics). If the trade “idea” pays off, one has to thank chance and not the analyst who recommended the trade.

However, once in a while, a gem of an analysis comes out of an investment bank's stable when a non-conforming and bright analyst comes up with a key insight which tells you to get out of a credit position. Never listen to an investment bank credit analyst who has a "buy" recommendation unless your own analysis substantiates that conclusion. Do pay attention to a "sell recommendation" or other code words for sell.

The MCI debt issue by Drexel was a great one for marking turn in credit quality

A creditor makes the most sensible investments when he gets in right at the beginning of a company's credit story, when other creditors would be wary of getting involved. There is no magic formula which can help in identifying the credit turning point, but it would help, if a credit analyst asked the question- what is the one thing that I would like to see in this company before I am convinced that this company has a credit story. So, when the one thing that the analyst seeks happens, the creditor can rush in while those excessively risk averse fear to tread in. Of course, in the last two decades of easy money policy in most of the developed world, the opposite happened- creditors rushed in before a credit story developed. Things will be different in the near future as creditors are likely to get overly cautious after the liquidity and stimulus driven rally is over. That leaves money making opportunities for those investors who are first off the block. In fact, at that point in time, the company would be even willing to talk about convertible features for participating in the upside, in addition to the coupon income and assured repayment aspect of the fixed income component. The upside component can make an investment thesis seriously interesting. At the middle of the 2008 credit crisis, Warren Buffet used this structure to get super fixed income returns on Goldman Sachs and General Electric instruments while he waited for the potential upside from the equity component.

The credit story of MCI Communications did not begin till the early 1980s, despite the fact that the company commenced operations in the late 1960s. Till the 1980s, the company was

locked in a legal battle with America's telephone services monopoly AT&T. What MCI's credit story lacked were two details- firstly, whether the company would succeed in its legal battle with AT&T to pry open the monopolistic market and secondly, would the company be able to secure the requisite financing so that suppliers and customers of the company would be comfortable doing business with the company without fearing that the company would go belly up.

After employing a battery of lawyers, MCI succeeded in finishing off AT&T's monopoly. The monopoly was split into a number of regional companies called "Baby Bells". When the legal victory came, the only unresolved issue was whether MCI would be able to secure the requisite financing so that it could become a viable company with a lasting credit story. In 1983, the company, backed by credit guru Michael Milken and his investment bank Drexel Burnham, issued a hybrid security - \$1.1 billion in 10 year bonds with warrants attached. The moment the monopoly was broken, cash flow visibility for 10 years was broadly available if MCI could convince its counterparties of its viability. The money also provided the company the financial muscle to build fiber optic networks to compete effectively with AT&T. Also, if one were looking at a possible investment, one would be comforted by the fact that MCI's debt equity ratio would fall substantially below the 1.83 prevalent at the end of 1982 (if the hybrid security issue went through).

If the funding went through, the last leg of a viable credit story would be in place- in short the \$1.1 billion issue itself was what would tip the scale. So, a potential investor here is actually required to follow the herd- if he thought other investors would invest, he should do the same because all aspects of a viable business would be in place. On the other hand if he thought that the financing would not go through, by a wide margin, he should also follow the herd and keep away. Here was one of the rare occasions when success lay in following the herd.

The financing did go through and MCI became a strong viable player. Cash on the balance sheet jumped from \$145 million in 1982 to \$542 million in 1983, providing immense comfort to suppliers and customers-the key to long term viability. The credit rating agencies also upgraded the company over a period of time. The company's investors reaped rewards when the company was taken over by telecom company WorldCom in 1998. Post the WorldCom bankruptcy after the fraud in the company, the company reverted to the original name MCI. In an ironical twist of fate, in 2006, the company was taken over by American telecom company Verizon. Verizon itself was formed in 1983 as Bell Atlantic, one of the seven baby bells created by the breakup of AT&T. MCI, which had broken the monopoly, had been swallowed by one of the entities it had caused to create.

Try using Societe Generale's Hybrid Pricing model on RBS's Upper Tier 2 Bonds in 2007

A credit investor investing in the hybrid capital instruments of banks just does not make any sense. The terms and conditions under which these bonds are issued make them only marginally less risky compared to equity. In some instruments (as discussed in Chapter 4), the maturity date cannot be known with certainty as the bank, under internal and external stress conditions might not call the instrument as indicated implicitly at issue. If the maturity gets pushed back, it might be beyond the crystal ball period where a credit story exists. Coupons can be deferred on these instruments without the event being classified as an event of default. And the coupon deferral call is not the bank's but its regulator's. Additionally, in the case of Hybrid Tier 1s, the deferred coupon has to be kissed goodbye as the coupon payments are non-cumulative. We feel investing in subordinated capital instruments of banks makes sense only if the bank is state owned and is likely to get Tier 1 hard equity from the government if the bank experiences financial trouble. In other cases, from a risk reward viewpoint, it is better to take one further step below on the capital structure and invest in the equity.

Investors were made aware of the frailties of these instruments starting December 2008, when Deutsche Bank did not call its €1 billion Lower Tier 2 bond on the first call date. The investor who had invested in what he thought was a five year instrument would have seen his plans go in smoke. And for the investor who invested based on a credit visibility for 5 years, that meant taking on risk he had not bargained for. Of course, from that day, the coupon payments would be 50 basis points higher than the coupon rate paid for the first 5 years, but that too does not compensate the lender. That a big financial institution was willing to put its reputation at stake (no matter how dire market conditions were in December 2008) should be an eye opener for all potential investors. Particularly since, in the case of Deutsche Bank, there was no pressure from regulators not to call the bonds. Once a big player like Deutsche did not keep its implicit commitment, the shame from not calling a capital instrument at the earliest call date was gone. In February 2009, Spain's Banco Sabadell did not call its lower Tier 2 notes at the earliest call date for the same reason as Deutsche- it would have been much more expensive to refinance the debt. Warren Buffet in his note to the CEOs of his companies mentions that Berkshire could afford to lose a lot of money, but could not afford to lose its reputation. Clearly, such old fashioned morality did not cut ice with the two banks' management. The fact that in the following months these banks were not punished by the markets was a clear indication that in times of abundant liquidity lessons are never learnt. Like the Bourbons of France, the investors learnt nothing and forgot nothing.

French bank Societe Generale's quantitative research department came up with a pricing model for pricing hybrids in 2007 that made a pig's breakfast of credit analysis and common sense. The beauty of the model was that you did not need to know anything about a bank's current asset quality, future asset quality, management quality (the assumption was that the CDS market spreads were already pricing in those mundane things. If that were the case, there would be no need for analysts, including "quantitative" analysts). The pricing model

resulted in a partial differential equation on the lines of option pricing methodologies, taken as sacrosanct in certain hallowed circles.

The lesson for a credit analyst is that even when investment banks' research is not conflicted, the recent parting with commonsense at many of the institutions makes their opinions dangerous. Most analysts at credit research departments do not know anything about credit analysis but assume that all they need to know for valuing an asset is its current value and some volatility parameter. The model was a result of what British author Malcolm Muggeridge described as educating oneself into imbecility. In early 2007, practically all bank CDS spreads were indicating that all was hunky dory. There were negligible difference between the credit spreads of different banks- whether they were investing in traditional mortgages or securities backed by negative amortization loans. CDS spreads, in good times, do not distinguish between chicken sandwich and chicken shit. But a good credit analyst should have been able to do so. Not only was garbage being used as input to the pricing model, the Mickey Mouse pricing model itself was garbage. It should not be a shocker when garbage pours forth as output.

Even before the UK bank RBS's adventurous take over of Dutch bank ABN Amro, the asset quality of the bank was terrible. The ABN Amro takeover merely accelerated the day of demise of the bank. If you had used CDS spreads for RBS in mid 2007 in Societe Generale's "pricer", you might have concluded that investing in RBS' Tier 2 bonds was not such a dumb idea. Of course, by doing so, you would have not only ignored the structural defects of the Tier 2 bonds for most credit investors. You would have ignored the bomb in terms of asset quality that was ticking inside the bank's innards. Disaster Stuck in 2008. In September 2009, the bank was instructed by the UK regulator FSA not to call its Upper and Lower Tier 2 bonds. Coupon deferrals and other paraphernalia were just around the corner.

Lehman's 2001 Amazon call: might have been wrong but at that time, Amazon was a venture

It is an abiding mystery why in 1998, when online retailer Amazon.com was a start up with very little visibility of earnings, it issued convertible debt. You do not issue debt securities when the exact tenure of your crystal ball period is 0 years. Perhaps it was the confidence that the company's legendary CEO Jeff Bezos had in his company's ability to turn profitable by the time the bond payments potentially became due in case the investors did not convert. It is even more mysterious why investors participated in the issue. If the business failed, the recovery would have been fairly low- marginally higher than the equity holders. However, Amazon was a case of good investment banking research- that too from a Lehman Brothers analyst, even if the call ultimately was proved wrong and Amazon not only survived but has scaled many new peaks. However, in the middle of 2000, when the Lehman analyst made the call, Amazon was a clear venture story that absolutely did not make sense for a creditor.

The Lehman analyst, in mid 2000 predicted the demise of Amazon on the back of liquidity problems. But did a creditor require an external analyst to tell him that? In 1998, the company posted a loss of \$ 125 million. In 1999, the loss widened to \$720 million. Finally, in 2000, the losses hit \$ 863 million. A credit analyst should not be worried about losses in a company that has established its credit story and over a business cycle has a return on capital employed higher than its cost of capital. But losses in a company that has not yet established its credit story is a different cup of tea altogether- it is faith based investing and credit investing and faith based investing do not go hand in hand.

The Lehman analyst correctly pointed out that Amazon's cost structure was unviable. Amazon itself agreed with this thesis as it drastically cut costs in 2001. But the central point of the Lehman thesis was that Amazon was heading for a liquidity crunch. The company had a negative working capital. Having a negative working capital is not a bad thing. In fact it can positively be a blessing- witness Wal-Mart's negative working capital improving finances

by obviating the need for interest payments on the short term debt required for funding working capital needs. However, if in spite of having negative working capital requirements, one is still making a loss, one's business model can be questioned, not only by the financial markets but by suppliers. And suppliers can put a company out of business before creditors by insisting on immediate payments for supplies.

Bezos strongly disagreed with the conclusions of the report. Both Bezos and the Lehman analyst were right. However Bezos was talking about the venture story of Amazon while the Lehman analyst was talking about the credit story. And things could certainly have gone either way in 2001. The company posted a profit during the fourth quarter Christmas season of 2001, even if it was secured by making the numbers as Jack Welch would have put it. But it would have had a very positive psychological impact on suppliers. One wonders what would have happened if the company did not report a profit that quarter. Would suppliers have gotten worried that despite having hit a high sales volume and negative working capital requirements, if in a Christmas quarter the company cannot be profitable, can it ever be profitable? It again posted a quarterly profit in the Christmas quarter of 2002, showing that if the volume of sales was right, the company could be profitable. And if more products could be pushed through the network other than books, the company could be profitable during the non Christmas quarters. Finally, when the company reported a profit during the third quarter of 2003, the Amazon credit story started. The specter of bankruptcy was gone. But in the summer of 2000, the Lehman analyst was right in his call. You don't stay right and negative at an investment bank for too long- the analyst left Lehman in 2001, not long after a second negative report on Amazon's prospects in early 2001. Incompetence is infinitely preferable to the bad attitude of bad mouthing potential fee paying clients.

The Credit Story of Distressed Credits

Contrary to popular perception, distressed credit investing, whether in the form of debtor-in-possession (dip) financing post bankruptcy or lending to a company under restructuring, is not as risky as it seems and need not be viewed as venture investing per se. There are several reasons for this. If a company has a sound business model but an inappropriately leveraged balance sheet, bankruptcy/ restructuring helps to shed debt load. Some of the existing creditors could be made to move to a more junior status through a debt for equity swap. Existing shareholders, if not totally wiped out, would see their shareholdings get sharply diluted. The interest payouts required could sharply fall. So, if post restructuring, a viable business has an appropriate capital structure, the company might become creditworthy with a clear credit story. In fact, if the investor is so convinced about the story, he might even think it fruitful to take on venture risk by buying convertible instruments of the company.

Another reason for looking to provide credit financing to distressed companies under restructuring/ bankruptcy protection is that at that moment, the different stakeholders- the current credit and equity investors, employees and their pension plans- are more realistic about a company's prospects and do not rely on illusions of a turnaround scenario. Every stakeholder, other than perhaps secured creditors, realize that if restructuring fails, they might have to write off all their investments- far better to compromise with the potential new creditor and salvage some value out of an unredeemable position. Obviously, if there is a loose monetary policy in effect, the stressed company can always find a sucker in the form of an M&A buyer (whether a private equity player or a "strategic" buyer), who might bail out the current stake holders (the risk passes on to the creditors of the M&A deal).

It must be emphasized that buying current distressed debt is a venturesome pursuit (venturesome, though not necessarily speculative if the price is right), irrespective of the price at which the assets are procured. Credit investing has a role only if the new credit

supplied to a company is senior to all the current elements in the company's capital structure. So, the new creditor can treat all current investments as if they were equity. This form of senior financing, outside bankruptcy, ceases to be a credit financing unless all the current creditors/ equity holders are on board. Or the sniping among the different stakeholders will reduce all prospects of survival. If the current debt investments have landed in CDO portfolios with several parties involved, it is better for sensible creditors to stay away. The fees that the company has to pay (such as legal fees) when several parties are involved, will sap the energy and value of an already troubled company.

Management, when it owns a considerable portion of the equity of a troubled company can act in ways which delays dilution of their holding in the company- thus further destroying value of the company. Besides, a management focused on capital structure issues is unlikely to be focused on the business, which might convert a formerly viable business into an unviable one.

Whether the business survives depends crucially on how the financing provided is used. Management has to be kept under tight leash to prevent preferential payout of the new funds to favored suppliers as this does not ensure long term success of the company

Calpine DIP financing was refinanced, not repaid

Calpine Corporation, one of the largest independent power producers in the US filed for bankruptcy protection in December 2005. The company was established in 1984 with the objective of setting up natural gas and geothermal power projects. The company secures revenues by selling power and steam to industrial companies, municipalities and utilities. At the time of bankruptcy, the company listed \$22.5 billion of debt and \$ 26.6 billion of assets which included around 24,000 MW of installed power generation capacity. The hugely indebted company just needed a small push to shove it over the edge. High natural gas

prices used for firing up gas fired power stations served as the catalyst for the bankruptcy filing.

Calpine's debt structure made providing debtor in possession (DIP) financing risky. Of the \$ 22.5 billion of debt, only \$ 5.33 billion was to unsecured debt holders. \$ 4.32 billion debt was held by secured creditors, while the rest of the debt was at the individual project level which effectively were senior to any DIP financing. If any of Europe's BOT operators (see the discussion in Chapter 3 : Consolidated Financials) were to get into trouble, the creditors, particularly the unsecured creditors at the parent company level would face a similar distressing situation. On the 31st of December 2005, the company had a negative shareholder equity of \$5.5 billion. When one is looking at DIP financing possibility, one needs to see a chunk of unsecured debt, which can be converted into equity during reorganization. It is this debt-equity swap that provides comfort to the DIP lender. If all the lenders are providers of secured credit, reorganization does not change the situation a whole lot. It means that the company has pledged its assets to the hilt for securing financing- and providing further financing is not going to change things much. Probably, the industry dynamics had been such that unsecured creditors could not be paid off through cash flows generated from the business- rather the company relied more of refinancing by pledging assets to stay afloat. At some point, you run out of assets to pledge or suckers to buy unsecured debt from the company- that's when bankruptcy looms. Calpine's doom came when secured creditors did not permit the sale of their assets for buying fuel- a sensible course as the company was burning cash like a crazed dotcom of the late 1990s.

Calpine might be an interesting business story in future. The recent discovery of natural gas resources in the US (which might drive prices down over extended periods), the likely stringency of environmental regulations (which might force producers of power from dirty sources such as coal to buy emission rights) might imply vastly improved prospects. But the

timing of these happy tidings is uncertain (the hall mark of equity risk). In the interim, power demand in the US might crash as households in the US repair their balance sheets, and municipalities do the same to their balance sheets. In the near future, one is likely to see several municipalities file for Chapter 9 bankruptcy as income from property taxes takes a hit.

On the 22nd of December 2005, the company entered into a \$ 2 billion DIP facility, which was amended in February 2006. This consisted of a \$1 billion of revolving credit facility priced at LIBOR +225bp, \$400 million of first priority term loans priced at LIBOR+225 bp and \$400 million of second priority loans priced at LIBOR +400 bp. The DIP facility imposed a lot of affirmative and restrictive covenants on the company. These included restrictions on incurring additional debt, prohibition from paying dividends and from prepaying any commitment (to conserve cash), prohibition from using DIP loans to make inter company loans, restrictions on investments, restrictions on indulging in M&A activities, restrictions on capital expenditure beyond specified limits and restrictions on sale and lease of assets. If the covenants were violated, the DIP facility would become immediately repayable. The DIP facility was secured by first priority liens on all unencumbered assets and junior lien on encumbered assets. The facility was to remain in place till reorganization under bankruptcy or December 20 2007, whichever was earlier. In March 2007, the company announced it had secured a new \$5 billion DIP facility- \$ 2 billion was to be used to refinance the existing \$ 2 billion facility and \$ 2.5 billion to pay down secured debt.

There were certain inconveniences for a power generator operating in bankruptcy- the company had to post cash collateral for the purchase of natural gas. The company ran an asset liability mismatch risk emanating from the difference between the weighted average tenure of the power purchase agreements under which the company sold power and gas purchase contracts under which it purchased gas. The company's profits depended on the

spark spread (the difference between the rate at which it sold the power and the price at which it purchased gas) and the tenure spread between the two contracts. But the root cause of the company's trouble was the leverage it employed in individual power projects, which made the company vulnerable even to small changes in the spark spread.

The Calpine DIP financing was a risky one. It was not paid off in 2007 when the company came out of bankruptcy but was converted to the Exit facility (the lending facility that is in place when a company comes out of bankruptcy). There was negligible visibility in 2005 about the immediate cash flows of the company when the DIP facility was put in place. The reorganization transferred some risk from the secured lenders to the DIP lenders when some of the secured lenders were paid off. The company continued to be terribly leveraged when it came out of bankruptcy. In 2008, the company just avoided having a splatter of red ink. The company was profitable in 2009, on the back of falling natural gas prices- but that was a very fragile recovery. A 2009 presentation of the company boasts about the company's double leverage – price of sale of electricity and volume of electricity sold on the recovery of the US economy. If the economy does not recover strongly, backed by household demand and not based on quantitative easing, the third leverage- its high debt equity ratio will kill it on the back of the first two leverages going in reverse. The pricing of the facility too did not cover the risks involved. In this case, the DIP financing (even if it latter emerges to have been successful due repeated quantitative easing in the US economy) just was not the sensible thing to do. A better call would have been to wipe out the 2005 shareholders, converting the unsecured lenders to equity with severe haircuts, and instead of bringing in DIP in the form of debt, brought it in the form of equity which could be used to repay the secured lenders and then bet on the possible investment story of Calpine. That prices risks and rewards correctly- not the Libor +225 bps on a leveraged facility prone to collapse.

DIP financing to a failing Credit Story does not work: the Delphi Automotive Lesson

Auto ancillary Delphi Corporation was created out of a spin-off from General Motors in 1999. The company had the same problems as GM- unsustainable labor contracts and horrifying pension liabilities. The company's most important customer was General Motors (the company accounted for 48% of Delphi's sales in 2005). Post the spin-off from General Motors, the company made losses for three of the following six years, until it finally filed for bankruptcy in 2005. Shareholder equity turned negative in 2004. The last straw was rising commodity prices in 2005 and General Motors refusing price increases.

In October 2005, a bankruptcy court approved a \$ 2 billion DIP financing facility provided by a couple of banks. Unless DIP financing is provided by a non credit investor, pure credit investors would not want to be repaid in shares. They want the repayment either from the cash flows generated from operations or from liquidation. DIP financiers cannot base their decision to provide financing based on likely refinancing of the facility. So, if after reorganization, he is paid off in shares of the company, it means the reorganization was a failure, and that the creditor made a mistake of getting into a company whose fundamental business model was shaky. Probably, the erroneous venturing into Delphi DIP financing was a result of excess liquidity sloshing the system in 2005. The same phenomenon that caused the growth of negative amortization home loans was what caused lenders to provide DIP financing to Delphi. Fundamentally, DIP financing makes sense if the business model was sound but the capital structure was not. Delphi's business model was anything but sound. Delphi's business model was unsound for several reasons. Its biggest customer General Motors was getting deeper and deeper into the mire and the company was not fast enough in securing alternate revenue sources. The unfunded pension liabilities and employee costs backed by union contracts were unsustainable. True, these could be dumped on the government in a bankruptcy setting. But the company's losses were at the operating level and

that too over several years- which pointed to the unviability of the business, even if the employee contracts were restructured. So, the DIP financiers should have known that this company would continue to burn cash, while reducing the value of its assets. With every passing day, the collateral available to the DIP lenders would continue to loose value. This cash burn rate should not be underestimated. DIP lenders who assume that they have a significant asset cover while ignoring the asset burn rate are bound to get their analysis wrong.

We had mentioned in Chapter 7 -Return on Capital Employed -that the correct value of assets is that value, which after write down, will generate a proper return on capital employed. For a company having a string of operating losses, the value of the assets is what the scrap yard would provide. Funnily, in 2005, there was wide disparity in the opinion on the DIP credit risk among the rating agencies- S&P rated it BBB-, Fitch rated it BB- while Moody's rated it B1. Moody's of course was the one that got it somewhat right.

Delphi made net losses of \$ 2.3 billion, \$ 5.46 billion, \$3.1 billion and \$ 3.03 billion in 2005, 2006, 2007 and 2008 respectively. The loss of 2006 should have been a final wake up call for the DIP lenders who had ventured into financing the company. After all 2006 was a very good year for auto sales. 2007 was an even better year for the auto sector (in fact a record year), but that had no impact on Delphi's bottom line.

Most important was the rapid fall in asset cover for Delphi's DIP creditors. Total assets of the company (the part that was under bankruptcy protection) were \$14.1 billion, \$ 11.7 billion, \$9.7 billion and \$ 7.2 billion respectively in 2005, 2006, 2007 and 2008. The liabilities that were not subject to bankruptcy compromise (secured creditors and supplier payables) jumped from \$4.4 billion in 2005 to \$ 6.2 billion at the end of 2008. Finally, when the settlement was reached, it was on wholly unfavorable terms for the DIP providers. Four plants of Delphi and its steering business were transferred to General Motors for \$ 4.75

billion. For forgiving \$3.4 billion of secured debt, they got equity control of the company with deeply uncertain prospects.

Wrong asset valuation: lessons from the Conseco Insurance Story

The most important issue while evaluating DIP financing to a financial institution is to be able to value the assets of the institution. If the institution is a bank or a non bank financing company, the data provided by the institution should make it amenable to evaluate the quality of the loans. Only then one can assess what amount of loans and investments have to be written off and what is the margin for error available to the provider of DIP financing. If this valuation is wrongly done, within no time, the bank's asset valuation would fall on account of bad loans coming home to roost. In the case of an insurance company, not only is it essential to value the assets properly, it is also necessary to evaluate the liabilities in the form of reserves for claims and unexpired risks.

An insurance holding company usually has no reason to borrow. There can only be two reasons for borrowing- either for leveraged takeovers of other insurance companies or companies in unrelated businesses, or for doing leveraged investments on the back of investing policy holder funds. Neither reason is a very sound basis for credit investing. In fact, very rarely does insurance company debt, either at the holding company level or at the operating level make sense. When the lending is done at the holding company level, the risks get more horrifying on account of the structural subordination of the holding company debt to operating company debt. And that debt is usually used for foolish M&A pursuits. Also, regulators of the insurance companies might, on account of financial weakness of the operating companies, prevent the operating companies from passing cash flows to the holding company in the form of dividend payouts. That would kill the holding company's ability to service debt.

For most of the 1990s, Conseco was regarded as a star insurance company, on account of a series of M&A transactions that the company participated in. The company was a bit player in the life and healthcare business. In 1998, the company acquired Green Tree Financial Corporation, which was to be the death knell of the whole edifice. Unlike earlier takeovers which were moderate failures, this one was a catastrophic failure. The company's problem stemmed from the asset quality of Green Tree which Conseco proved singularly unable to assess. Green Tree was a Minnesota based mobile home lender. Conseco bought Green Tree for \$ 6 billion with the aim to sell insurance and investment products to Green Tree's borrowers. After realizing the folly of its purchase, the company, in March 2000, announced its plan to sell off Green Tree, which it had renamed Conseco Finance. By April 2000, with the stock sharply below its pre-Green Tree acquisition price, the CEO resigned.

Despite getting a new CEO, things kept getting worse. The loss in the 2nd quarter of 2000 was \$ 407 million (including the payoff for the sign-in bonus of the new CEO). In the following quarter, the loss widened to \$ 487 million as the nasty asset quality of Green Tree started taking its toll. Losses on mobile home loans and investments caused a 2nd quarter 2002 write-off of \$ 4 billion. After a lot of huffing and puffing, the company finally filed for bankruptcy with \$ 7 billion in debt.

Post bankruptcy, the company sold its finance subsidiary (the one that caused it so much grief) for \$ 1.3 billion. The insurance subsidiaries did not file for bankruptcy as these were deemed sound by regulators. But insurance companies are badly hurt by bankruptcy talk, even if it is at a holding company level. That is because the insurance business relies on the promise of future payment for claims- so the slightest whiff of inability to fulfill those promises does not augur well for the ability to secure new business. You have to give sales agents added incentive to peddle the insurance policies of a company perceived not to be sound. That pushes up costs and drives down profitability.

The creditors had a rough ride out of the Conseco bankruptcy. Shareholders of the entity, of course, got wiped out. The unsecured creditors got shares in the company. The company had given loans to officers and directors of the company for buying company stock. The lenders to that facility also got stock. The \$ 7 billion debt was cut by the bankruptcy judge to \$ 1.4 billion. Preferred debt holders got stock as well as warrants. The company came out of bankruptcy as a pure insurance company. Many other companies were to later realize the folly of combining lending and insurance and lending and investment banking over the next few years.

A lender to a DIP financing facility must estimate the amount of legal fees and other fees associated with restructuring before providing financing. Fees can substantially reduce the assets available to the post bankruptcy lenders. In cases like Enron, WorldCom as well as Lehman brothers, the restructuring fees were a chunk of available assets. In the Conseco bankruptcy case, restructuring fees were \$ 90 million, which was not a big chunk of assets.

The Conseco saga did not end there. After the company emerged from bankruptcy in September 2003, the company's finances did not get any stronger. Its stock price post bankruptcy came within kissing distance of the issue price in late 2005. By the end of 2007, when a debt fuelled binge was happening elsewhere in the financial world, Conseco's stock price was about half its post bankruptcy issue price. By the end of 2008, it had become a quarter of the issue price. In 2008, when the company stood in serious risk of breaching various covenants, its senior debt was rated Caa1 by Moody's and CCC by S&P. In 2008, the company had some serious write down of its insurance investment portfolio. When an insurance company is under financial threat, there is an incentive for the company to take risks on its investment portfolio. Of course, taking risk in terms of lowly rated credit investments has implications for the company's capital adequacy. But when the rating agency itself rates junk structured finance products highly, the opportunity for shaky insurers

such as Consecos was too good to ignore. Based on the company's finances as on 31st December 2008, auditors expressed grave doubts over Consecos's ability to continue as a going concern.

To those who agree....and to those that don't

Credit analysis is really a field for the intellectually curious; those who love to assess the impact on corporate earnings of all the changes that continuously take place, whether in the form of changed technology, regulation, currency movements etc. What worked yesterday, might not work tomorrow. In fact, the frame of reference itself might have moved. It is pointless to gaze at a star for guidance, when the star itself has exploded and passed into the vast infinity of space and time. So, the framework of credit analysis, except for broad brushes, cannot be passed on from generation to generation unlike Newton's framework for Applied Mechanics. This book presented a framework for investment analysis and credit pricing that relies on common sense and intellectual curiosity and avoids the flawed cookbook methodologies of rating agencies and exotic and inappropriate math of investment banks. Basically, this book is about financial statement analysis beyond stated numbers.

The broad brush of credit analysis involves estimating the return on capital employed of a company under various circumstances in the foreseeable future. Estimating the return on capital employed of a company in the foreseeable future requires a clear understanding of the credit story of the entity. The other broad brushes include assessing the company's linkages with other entities and the vulnerability of the value of a firm's assets and liabilities to changed circumstances. In the case of analyzing the fortune of sovereign credit, narrowly looking at the sovereign's economic strength without peering at the strength of its linkages to the household and corporate sector is a folly of formidable proportions. The broad brush also involves assessing how much of current costs and liabilities have been pushed into the future by a sovereign or a company.

Credit rating agencies have converted the credit analysis process into a cook book one that requires calculating certain ratios and checking certain boxes. Because, they involve looking at the past to predict the future, they fail “when markets collide”. PIMCO’s El-Erian has written that markets collide when yesterday’s markets are in the process of giving way to tomorrow’s markets. When markets collide, there are profound changes in credit quality. Such changes cannot be gleaned by combining yesterday’s credit story with calculation of today’s financial ratios to estimate tomorrow’s credit quality. Because of the group think and lazy analysis that is at work, the rating agencies, not only fail to spot the profound changes taking place- they treat it as mere noise. The recent failures in the credit analysis of sovereigns and banks by the rating agencies can be laid at the door of inadequate understanding of the credit story of the entities being rated. The flaws on the structured finance side happened due to a combination of inadequate understanding of the credit story of the US household sector and the greed to secure fees even if they did not have the requisite data to do the analysis. These terrible credit rating failures brought untold woes to pension fund managers and other asset managers who relied on credit rating agencies for their asset allocation decisions. The time has come for such managers, if they are serious about protecting investor wealth, to rely on their own analysis (using the broad brush framework suggested in this book), and supplementing it with thoughts of independent credit researchers who are not prone to group think and who are answerable only to those whose assets they attempt to protect. Such researchers would not be punished or rewarded for day to day portfolio performance.

Quantitative credit analysis is a contradiction in terms. Credit analysis requires the use of common sense because no financial model has yet been devised (and none ever will be), which can take into account the changing behavior of human beings in response to incentives. Planet Uranus is not going to revolve around the sun any faster because some incentives

changed- hence its behavior can be modeled based on immutable laws. When you enter the game of investing with a wrong tool you are destined to lose. You can't win a football match with a baseball bat. In fact, you have lost the battle even before it commenced.

Quantitative "analysts", not only suck fees from investors, either directly or indirectly. They also devastate their investment portfolios after collecting "structuring fees" and other paraphernalia- much like a spider eating its mate after copulation. They are best kept at a safe distance to protect one's investment portfolio.

To those who agree with our thoughts on credit analysis and to those who disagree (perhaps the stalwarts who design credit rating methodologies and individuals who make a living out of the con job called quantitative finance), until we meet again, hopefully fairly soon for a discussion on pricing financial risk from first principles, we part with the following words of

Lord Byron

Here's a sigh to those who love me
And a smile to those who hate
And, whatever sky's above be
Here's a heart for every fate

Chapter Notes

Chapter 1: Credit versus Equity

- 1) “The Financial Instability Hypothesis” by Hyman P Minsky, Working Paper No 74, May 1992, Levy Economics Institute
- 2) “War Debt, Moral Hazard and the financing of the Confederacy” by Herschel Grossman and Taejon Han, Journal of Money, Credit & Banking, May 1, 1996
- 3) “A History of Corporate Finance”, Jonathan B Baskin and Paul J Miranti, Cambridge University Press, 1997
- 4) “Project Management Case Studies”, Harold Kezner, John Wiley & Sons, 2009
- 5) “Project Financing: Asset-based Financial Engineering”, John Wiley & Sons, 2007
- 6) “Built to Last: Successful Habits of Visionary Companies”, James C Collins and Jerry I Porras, HarperCollins, 1997
- 7) “My Years with General Motors”, Alfred P Sloan, Broadway Business, 1990
- 8) “Rock of Ages : Monte dei Paschi”, The Economist, September 24, 1994

Chapter 2: Credit Story of an Entity

- 1) “Hot Commodities”, Jim Rogers, Random House, 2004
- 2) “Investment Biker”, Jim Rogers, Random House, 2003
- 3) “It Takes a Pillage: Behind the Bailouts, Bonuses, and Backroom Deals from Washington to Wall Street”, Nomi Prins, John Wiley, 2009
- 4) “More than they promised : The Studebaker Story”, Thomas Bonsall, Stanford University Press, 2000
- 5) “The Business of Media Distribution”, Jeff Ulin, Focal Press, 2009

Chapter 3: Consolidated Financials

- 1) “This Time is Different: Eight centuries of Financial Folly” Carmen Reinhart and Kenneth Rogoff, Princeton University Press, 2009
- 2) “Sovereign Credit Ratings : A Primer”, Standard and Poor’s, 2006
- 3) “Sovereign Bond Ratings: Rating Methodology”, Moody’s Investors Service, 2008
- 4) “Fitch Sovereign Ratings: Rating Methodology”, Fitch Ratings Ltd, 2002

- 5) “The Pro-cyclical Role of Rating Agencies : Evidence from the East Asian Crisis”, G.Ferri, L Liu and Joseph Stiglitz, Economic Notes Vol 28, Issue 3, pages 335-355, 2nd December 2003
- 6) “Public Private Partnerships : A Guide for Local Government”, British Columbia Ministry of Municipal Affairs, 1999
- 7) “Empire State Building: The Building of a Landmark”, John Tauranac, St. Martin’s Griffin, 1997
- 8) “IFRIC 12 Service Concession Arrangements”, IAS Plus, Deloitte, December 2006, IFRIC Special
- 9) “Keiretsu: Inside the Hidden Japanese Conglomerates”, Kenichi Miyashita and David Russell, McGraw Hill, 1995
- 10) “Corporate Governance and Finance in East Asia”, edited by Ma Virginita Capulong, David Edwards and Juzhong Zhuang, Asian Development Bank, 2001

Chapter 4: Valuation of Assets and Liabilities

- 1) “Liquidity Risk : Managing Asset and Funding Risk”, Erik Banks, Palgrave Macmillan, 2004
- 2) “Valuing Intangible Assets”, Robert Reilly Jr. and Robert Schweihs, McGraw Hill, 1998
- 3) “Corporate Lease Analysis : A Guide to Concepts and Evaluation”, Bennie Nunnally Jr., Anthony Plath and Helene Johns, Quorum Books, 1991
- 4) “Accounting: Concepts and Applications”, Steve Albrecht, James Stice, Earl Stice and Monte Swain, South Western College Publishers, 2007
- 5) “Financial Instruments: Applying IAS 32 and IAS 39: Summaries, Guidance, Examples and US GAAP Comparison, Deloitte Touche Tohmatsu, 2001
- 6) “Basel II: International Convergence of capital Measurement and Capital standards”, Bank for International Settlements, 2006
- 7) “Getting Started in Real Estate Investment Trusts”, Richard Imperiale, John Wiley, 2006
- 8) “The Credit Scoring Toolkit: Theory and Practice for Retail Credit Risk Management and Decision Automation”, Raymond Anderson, Oxford University Press, 2007
- 9) “The Handbook of Mortgage Backed Securities”, Frank Fabozzi, McGraw Hill, 2006.
- 10) “Value at Risk”, Philippe Jorion, McGraw Hill, 2000

- 11) “Trading Losses at Financial Institutions Underscores Need for Greater Market Risk Capital”, Standard and Poor’s RatingDirect, April 15, 2008
- 12) “Pension Dumping”, Fran Hawthorne, Bloomberg Press , 2008
- 13) “For how long will Dfined Benefit Liabilities continue to grow?”, Watson Wyatt Technical Paper, Santiago Cabaleero Nov 2007
- 14) “Robbing Peter to Pension off Paul”, Edward Hadas, Euromoney, July 2004
- 15) “The Sinking of Bethlehem Steel”, Carol Loomis, Fortune, April 5, 2004
- 16) “Insurance Operations, Regulation, and Statutory Accounting”, Ann Myhr, Insurance Institute of America, 2004

Chapter 5: Efficacy of Working Capital Management & Short Term Debt

- 1) “Love Hotels juggle Bed Sheets and Balance Sheets”, Mark Schrieber, Japan Times July 18, 2004
- 2) “Working Capital Management: Strategies and Techniques”, Hrishikes Bhattacharya, Prentice Hall of India, 2008
- 3) “Revenue Recognition: Rules and Scenarios”, Steven Bragg, Wiley, 2007
- 4) “Supply Chain Management : Strategy, Planning and Operations”, Sunil Chopra and Peter Meindl, Prentice Hall, 2000
- 5) “Construction Accounting and Financial Management”, Steven J Peterson, Prentice Hall, 2008

Chapter 6: Contingent Liabilities, Contingent Assets & Contingent Margins

- 1) “Government at Risk : Contingent Liabilities and Fiscal Risk”, Hana Polackova Brixl and Allen Schick, World Bank, 2002
- 2) “Is MBIA Triple A”, Gotham Partners Management Co., LLC, 2002
- 3) “Product warranty Handbook”, edited by Wallace Blischke and Prabhakar Murthy, CRC Press, 1995
- 4) “Introduction to Oil Company Financials”, David Johnston and Daniel Johnston, Penwell Petroleum Books, 2005

Chapter 7: Return on Capital Employed

- 1) “The First Tycoon: The Epic Life of Cornelius Vanderbilt”, T J Stiles, Alfred A Knopf Publishers, 2009
- 2) “Breakeven Analysis and Operating Leverage: Understanding Cash Flow”, Harvard Business School Press, 2009

- 3) "Process Industry Economics", David Brennan, Butterworth-Heinemann, 1998
- 4) "Media Economics: Applying Economics to New and Traditional Media", [Colin Hoskins](#), Stuart McFadyen, Adam Finn, Sage Publications, 2004
- 5) "Management of Business Logistics: A Supply Chain Perspective", John Coyle, Edward Bardi and John Langley, South Western College Publications, 2002

Chapter 8: Management and Covenants to keep Management honest

- 1) "Financial Shenanigans", Howard Schilit, McGraw Hill, 2002
- 2) "The Ethics of Accounting and Finance", edited by Michael Hoffman, Judith Kamm, Robert Frederick, Edward Petry, Greenwood Publishing
- 3) "Straight from the Gut", Jack Welch and John Byrne, Business Plus, 2001
- 4) "What the CEO wants you to know", Ram Charan, Crown Business, 2001
- 5) "Inside Arthur Andersen- Shifting Values, Unexpected Consequences", by Susan Squires, Cynthia Smith, Lorne McDougall and William Yeack, FT Prentice Hall
- 6) "Accounting in Crisis", Special Report, Businessweek, January 28 2002
- 7) "An Overview of Covenants in large Commercial Banks", John Paglia, The RMA Journal, September 2007

Chapter 10: Not much Mathematics Required

- 1) "Modeling Term Structures of Defaultable bonds", D. Duffie and K J Singleton, Review of Financial Studies, Vol. 12, No. 4, (Special 1999)
- 2) "Credit Scoring and its Applications", Lyn Thomas, David Edelman and Jonathan Crook, Society for Industrial Mathematics, 2002
- 3) "On the pricing of Corporate Debt: The Risk Structure of Interest Rates", Robert Merton, Journal of Finance, Vol 29, No2 (May 1974)
- 4) "Credit Risk Modeling: Theory and Applications", David Lando, Princeton University Press, 2004
- 5) "Corporate Financial Distress and Bankruptcy", Edward Altman and Edith Hotchkiss, John Wiley and Sons, 2005
- 6) "The Fourier Transform method- Technical Document", Moody's working paper 30, January 2003
- 7) "The Binomial Expansion Technique", Moody's Technical Document, 1997

- 8) “On Default Correlation: A Copula Function Approach”, David Li, .Journal of Fixed Income, 2000

Chapter 11: Lessons from Investment Calls

- 1) William Ackman’s letter to the New York Insurance Regulator and the SEC, January 2008
- 2) William Ackman’s letter to Moody’s, S&P and Fitch , January 2008
- 3) “Accounting Ingenuity”, David Einhorn, Ira W Sohn Investment Research Conference May 2008
- 4) “Fooling all of the People some of the time”, David Einhorn, John Wiley, 2008
- 5) “The Greatest Trade Ever”, Gregory Zuckerman, Broadway Books,2009