

Credit Crash?

Credit Wars

It is now *de rigeur* to begin any presentations on credit derivatives with a graph that shows the growth in interest rate swaps volume from the inception of the market to today. In a marvel of Powerpoint™ builds and pyrotechnics (that has taken some long suffering assistant hours to construct), credit derivatives volumes are overlaid on this graph. The speaker then inevitably draws the conclusion that credit derivatives markets will continue to grow at an astonishing rate to become the single most traded market on the planet. The late John Kenneth Galbraith, the American economist, noted: “Nothing so gives the illusion of intelligence as personal association with large sums of money. It is also alas an illusion”.

Alan Greenspan is an advocate of, generally, hedge funds and credit derivatives. The Maestro, Greenspan’s nickname, is noted for many things - playing tennis, a love of jazz saxophone and presiding over an unparalleled period of prosperity and several asset price bubbles and collapses. Greenspan is famed for prolix sentence construction. Greenspan’s regular congressional testimony used to attract financial analysts, journalists and linguists in equal numbers. An industry in interpreting Greenspan’s prognostications developed. Without a hint of self-parody, Greenspan himself provided guidance to interpreting his pronouncements. [Slide 5] “I know you believe you understand what you think I said, but I am not sure you realize that what you heard is not what I meant,” the Maestro once offered as explanation. He further clarified his position with unusual directness. “If I have made myself clear then you have misunderstood me.”

On 18 May 2006, Greenspan (speaking at the Bond Market Association) spoke eloquently about the stabilising effect of credit default swaps (“CDS”) on the international financial system¹:

“The CDS is probably the most important instrument in finance. ... What CDS did is lay-off all the risk of highly leveraged institutions – and that’s what banks are, highly leveraged – on stable American and international institutions.”

We will critically examine whether the position espoused by Greenspan is in fact true.

¹ See “Greenspan Slams CDS Paperwork” (June 2006) AsiaRisk 4

Paradoxically, in the course of the same speech, Greenspan expressed shock and horror at the appalling state of settlements in the credit derivatives market. He was appalled that banks trading CDS seemed to document trades on scraps of paper. The ex-Chairman, perhaps unfamiliar with the reality of financial markets, had difficulty reconciling a technologically advanced business with this “appalling” operational environment. Then, in finance as in life, appearances are misleading. In this paper, we will examine the fact and the fantasies in the “new” credit markets.

Turning Tricks

Until recently, credit risk management had changed little since the days of Rothschild. He always lent to both sides in any war. The winner would always ensure that both debts were repaid. If the borrower didn't repay, then Rothschild might finance a new war against the winner to enforce his debt. The cunning man was well versed in risk management.

Structured credit products have changed credit markets. The change is substantially based on two products – the CDS and Collateralised Debt Obligations (“CDOs”). It's time to have a little “fun with CDS and CDOs”.

The basic promise of the products is to allow credit risk to be traded, easily and efficiently. This enables credit risk hedging and transfer. This allows credit risk to be distributed better within the financial system – that is, risk will be better spread reducing the risk of a “crash”.

Until credit derivatives, the only way to get rid of a loan was through a cumbersome and complex sale process - an assignment or novation. The bank generally required the permission of the borrower - “the loan can be assigned by the lender *only* with the consent of the borrower, such consent not to be *unreasonably* withheld”. Any test predicated on a “reasonableness” cannot be applied “reasonably”.

During my time as a corporate treasurer, I received a few requests for assignments of loans. Asking is fatal to the banker-client relationship. Any suggestion that the bank wanted to off-load any loans or credit risk was automatically regarded as betrayal. Asking the client also did not guarantee success.

The company I worked for slid from a “A” credit rating (we *will* pay you back) to “B” (we *may* pay you back). A number of banks threw relationships out of the window and sought to assign their loans. I didn’t reply. I didn’t say no but I also didn’t say yes. I was not going to say no as the bank could challenge it as “unreasonable”. I was perpetually considering the request, very carefully. One banker finally rang me in despair. Would I give him an answer before the loan matured? It was difficult to say. There were complex issues needing careful and deliberate consideration. In fact, I am still considering the matter.

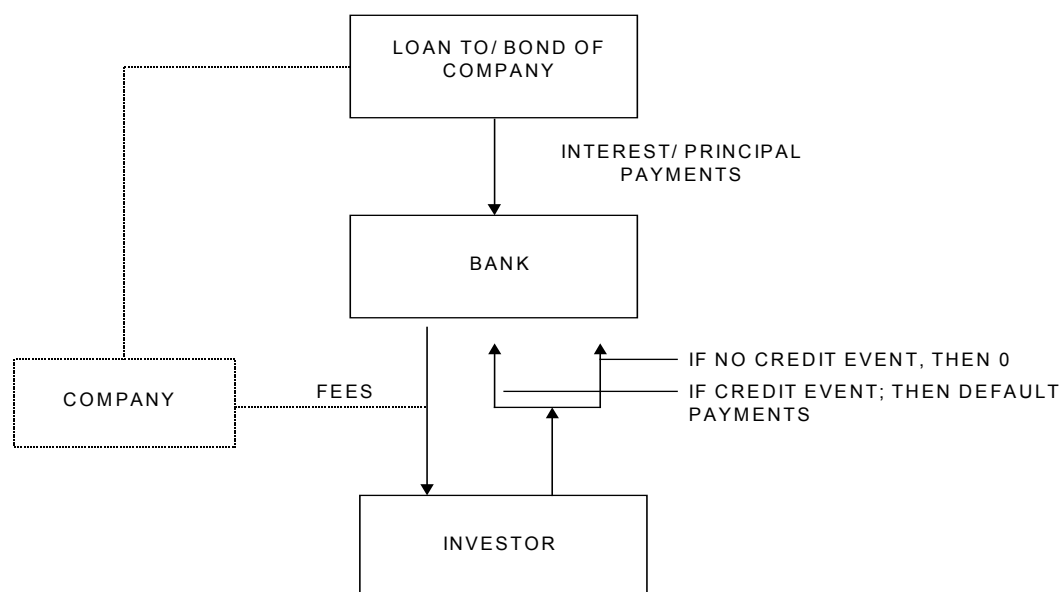
Remote Credit

The basic idea of a CDS is simple. Assume that a bank has made a loan to a client. The bank now wants to sell the risk on the loan. It has too much exposure to the client, the industry or country - this is “concentration risk”. Alternatively, the bank knows something that makes it worry about whether it will get its money back. The reason doesn’t matter. The bank just wants to sell the credit risk on the loan.

The bank finds someone who wants the risk. They like the company. They have little exposure to the company, industry or country. They don’t think the company will default. They are unaware of the risks. Whatever the reason, the investor is happy to take on the risk. The two parties enter into the CDS.

Under the CDS, the bank pays the investor a fee. In return, the investor agrees to indemnify the bank against losses if the company fails to meet its obligations or goes bankrupt. If that happens, then the investor pays the bank compensating it for the losses on the loan. The CDS resembles a guarantee. It is like insurance against bankruptcy. The bank is effectively re-insuring its risk on the loan.

Credit Default Swap (CDS)



Russian Dolls

The CDS only allows banks to push credit around amongst each other. A bank with too much risk to a firm buys protection. A bank with too little exposure is happy to sell protection. It is the “push and pull” of credit markets.

To go beyond the push and pull, banks need to shift risk to “real money” - investors. Investors traditionally have been content to lose money investing in government bonds, shares and property. They had to be convinced about a new “asset class”. Bankers trooped to investors and their masters, the asset consultants. They wailed a new siren song - “credit is a new investment asset”.

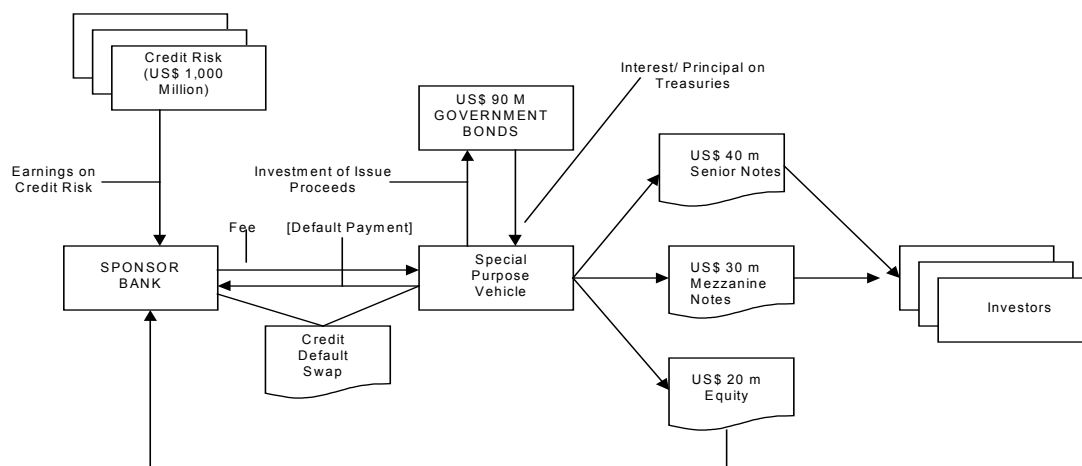
There was “diversification”. Credit did not move together with other asset classes. There was “return”. Credit risk gave you a higher return than government bonds. There was “volatility”. Risk margins fluctuated. Excited investors immediately assumed that with their superior skills they would make money. They didn’t seem troubled at all that the volatility may translate into losses not profits.

Then, there are the real reasons. In the early 2000s, the equity market’s stellar run was over. Bond yields were at record lows. Property prices looked inflated, financed by a flood of money fleeing carnage elsewhere. The only game in town was credit and hedge funds. Investors unsurprisingly discovered “credit”. It was, it seems, a new asset class.

The tool used to give investors credit is the CDO. It has its origins in mortgage securitisation. The staple of the market is the synthetic CDO. It came about by accident. It was a BLT (bonus led transaction), completed in December 1997, about 6 months after Asia went into meltdown. JP Morgan’s world champion credit derivative team had promised to sell down about \$10 billion of the bank’s credit risk by year end. This now looked impossible. Driven by necessity, the JP Morgan team crafted what remains the definitive piece of credit engineering. The deal was called BISTRO (Broad Index Secured Trust Offering). It offered the investor a smorgasbord of credit.

The idea behind synthetic securitisation was to transfer the credit risk rather than the loan itself. It proved the stuff of genius. The “wiring” diagram of as synthetic securitisation resembles that of a WMD.

Synthetic Securitisation



The bank doesn't sell its loans. Instead, it entered into a CDS on the loans with the SPV. The SPV agreed in return for a fee to indemnify the bank from losses on the entities covered by the CDS. The SPV raised money that was parked in government bonds. The bonds were pledged to cover any payments that the SPV may have to make to the bank under the CDS if any entity defaulted.

The first BISTRO deal allowed JP Morgan to sell about \$ 10 billion of credit risk. Innovation had saved the day. Bonuses were salvaged. The markets paid JP Morgan the ultimate accolade. They shamelessly imitated the structure.

CDS and CDOs, together, are referred to as the “synthetic” credit markets. “Synthetic” is a common adjective in credit derivatives.

Technical SNAFUs

These are highly technical markets and should come with a “health warning”. Frequently, they have little to do with credit risk, at least, as Lord Rothschild would understand it.

Mistaken Identity

At the heart of the CDS contracts is the “reference entity” – the company whose credit risk is being traded. What happens if the reference entity mutates unexpectedly? If you lend directly to the company then the borrower has to ask the lender's permission. In a CDS neither party necessarily has a direct relationship with the borrower. The CDS contract just references the borrower.

AT&T is something of a re-organisation junkie. The venerable company split itself into three companies – AT&T, Lucent and NCR. Then, AT&T announced that it would reorganise itself again into 4 separate entities. If you had bought or sold protection using a CDS on AT&T what would happen after the de-merger?

A trader asked me the question? Using the precedent of Solomon, I replied that the CDS contract should be split into 4 equal bits. If you had a CDS for \$20 million on AT&T, then you would now have \$5 million contracts on each of the four new entities. The trader looked at me in disbelief.

The ISDA CDS documentation originally specified that the credit protection should be transferred to the entity assuming “all or substantially all” of the obligations of the original reference entity. Nobody could agree on what the word “substantial” meant. So, a new Successor provision, designed to clarify the matter stated, that the “new” reference entity was:

- An entity that assumed 75% of the existing obligations of the original reference entity.
- If no entity took over 75%, then the new reference entity was all entities that assumed between 25% and 75% of the obligations with the original CDS being split evenly amongst these entities.
- If no entity assumed 25% or more, then the original legal entity would be deemed the successor.
- If no legal entity survived and no entity assumed more than 25% of the obligations, then the entity which assumed the greatest percentage of obligations became the reference entity for the CDS.

My idea wasn't so silly after all. It didn't really sort out the problem. The CDS was divided up but your original loan was taken over by *one new entity*. If you had bought protection, then the rules meant you could end up having protection on one or more entities although your loan was actually now to another one. If you had sold protection then you had no idea whose risk you ended up with.

Grizzled credit officers talk about the importance of “knowing your client”. In a CDS, you can't be sure who your client is. The recent pandemic of Leverage Buyouts and Corporate cannibalism (mergers and acquisitions) has highlighted this problem.

Delivery Address

Settlement of a CDS is usually by “physical delivery”. The seller pays the buyer of protection the face value, say \$10 million. In return, the seller receives \$10 million face value of defaulted bonds or loans. The difference between the amount paid and the actual market value of the defaulted securities is the loss to the seller. It is also the gain to the buyer.

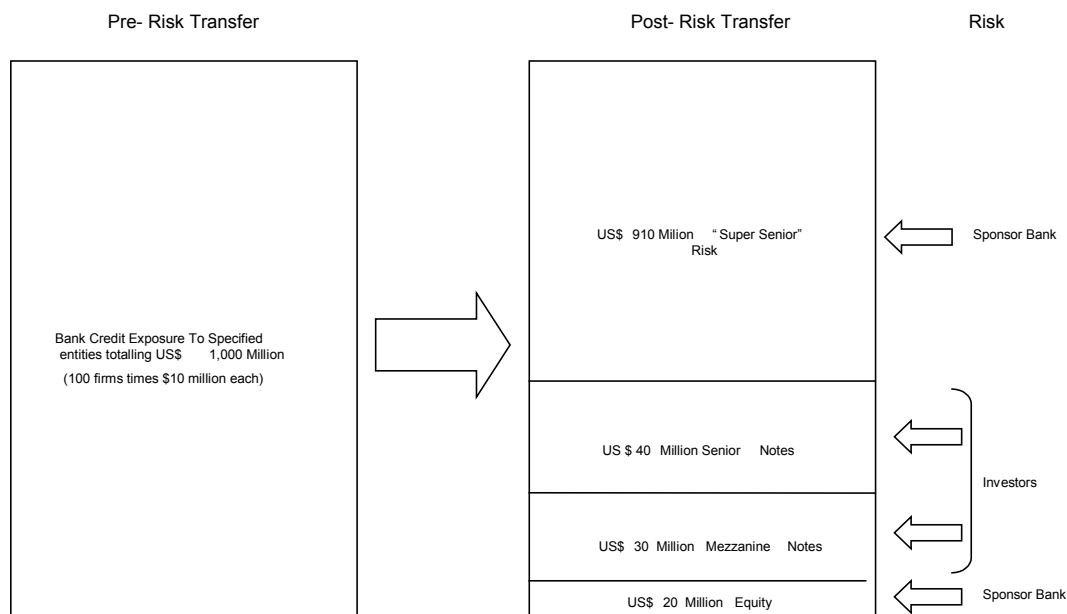
This assumes that there is, of course, something to deliver. General Motors (GM) is a widely traded name in the CDS market. The volume of CDS outstanding on GM is many times the value of deliverable GM debt. We actually don’t know how many times over. This is the OTC derivatives market where there is no transparency at all. It is all a secret.

In 2006, Sainsbury, the English retail giant, refinanced a substantial portion of its debt using collateralised mortgage backed securities (CMBS). Rating agencies actually downgraded Sainsbury but the CDS fee fell suggesting that Sainsbury’s credit risk had improved. The CDS fee fell because there was nothing to deliver to take advantage of the CDS contract even if Sainsbury defaulted. Technical factors!

Tranche Warfare

CDO are about “tranching”. The SPV raises equity, mezzanine and senior debt like a normal bank. This is the “capital structure” of the SPV; how you cut up returns and risks. You don’t have to spread the return and risk equally. The CDO *tranches* the risk. The risk is shared unequally.

Synthetic CDO Capital Structure



The bank generally puts in all or most of the equity in the CDO. The mezzanine and senior notes are sold to investors. Insurance companies, fund managers and high net worth individuals buy these notes. For some obscure reason retirees and wealthy individuals in Australia and New Zealand are especially attracted to CDO mezzanine investments.

The senior note holders get paid first. If there are losses then equity takes the first losses. If the losses are greater than the equity amount then the mezzanine investors get hit. Senior note holders take a smack only if the losses on the underlying loans are above the equity and mezzanine amounts. The mezzanine and equity investors receive a high return in return for accepting the higher risk. This is “tranching”.

CDO tranching is the black art of dissimulation - “spin”. Investors are told that they are getting access to a “diversified” portfolio of credit risk. The portfolio on which the CDO is based is generally “diversified”. For example, a \$1,000 million portfolio might be made up of 100 loans of \$10 million each. Each loan is to a different entity. The portfolio is diversified. If you buy the senior notes then you are also diversified.

Unfortunately, if you buy the mezzanine or equity then you have a problem. You have taken a risk on a small sub-set of the portfolio. Assume that if any of the 100 firms defaults, you would expect to lose 100 % (a recovery rate of 0%). The equity investors take the risk of first 2 two firms to default (\$20 million of losses). The mezzanine investor takes the risk of the next 3 firms to default (\$30 million of losses). Between them, equity and mezzanine investors take the risk of the *first 5 firms* out of the 100 firms in the portfolio to default. The problem is that they have no idea which 5 firms are likely to be.

Banks use CDO technology to shift credit risk on the loans that they have made or to use the current argot – “originated”. This is what Chairman Greenspan enthused about. However, the banks will generally hold the equity piece. This means that *they* still hold the risk of the first defaults or first losses. In most deals, rating agencies usually set the equity tranche size to cover many multiples of the normally expected losses. The banks have exactly the same risk that they probably started the game with.

CDOs are all about the exact opposite of “diversification”. It is “concentration” risk. It is also “default correlation” risk.

Default or credit correlation is the latest buzzword in credit markets. This is the risk that if Company A defaults then Company B will default. Buying and selling CDO tranches entails trading credit correlation risk. This is because the values of the tranches are affected by credit correlation.

If correlation increases then the equity tranche of a CDO appreciates in value while the senior tranche loses value. This is because if there are likely to be more defaults in the underlying portfolio then equity will be wiped up but the more senior tranches will bear a proportionate higher amount of risk of loss. Many will find it hard to understand how an equity holder can show a mark-to-market gain when I am more likely to suffer more losses. Credit derivatives is like that. If correlation decreases then the opposite happens.

Credit correlation is a form of witchcraft shrouded in the “data paradox”. This refers to the fact that many of the inputs, like credit correlation, cannot be empirically validated. If you ask the question – “ will Company A default if Company B defaults – then neither company has defaulted.

Nobody is actually clear on what we mean by credit correlation. We are unclear what a credit correlation of 20% means. If Company A defaults then the actual default correlation is either 0 or 1. Company B will simultaneously default or not. Traders frequently use a single correlation for portfolios of 100 firms; that is, the chance of anyone defaulting if someone else defaulted is the same. For a given portfolio more than one correlation is possible depending on the model used. Different tranches give different correlation. The difference is sometimes large. How can this be? Weren't the firms in the portfolio the same? The market uses a Gaussian copula to model credit correlation. The rocket scientists are copula-ing away excitedly. Bystanders need to be wary in case they get copula-ed accidentally.

Dogs & Tails

The synthetic credit market now operates as an overlay to the real debt market where companies actually borrow and where banks and investors lend money. The currently fashionable games in CDS and CDO markets drive the “real” world of credit. Commissioner Sharon Brown-Hruska of the Commodity Futures Trading Commission framed the definitive formulation of the general relationship between cash and synthetic markets²:

“The physical markets are like the body of the dog in that they contain the fundamental information about the market. The tail is composed of trading markets like futures markets. It is connected to the dog but one of its primary functions is to tell us about the dog: is he happy or mad? Does he need to be fed? Or should we put a collar on him?”

In the case of credit markets, it is very much a case of the tail wagging the dog.

Structured credit products make credit tradable and to allow transfer of credit risk. Major banks now are “originators” of loans – which is merely a polite way of saying only risk “other people’s money”. They sell loan “product” but flick the risk to other people. This is what Greenspan argues is the major benefit of credit derivatives – *“lay-off all the risk of highly leveraged institutions – and that’s what banks are, highly leveraged – on stable American and international institutions”*.

Today, in the US, approximately 60-70% of the credit risk of loans is directly or indirectly transferred to investors. This is up from about 10% 15 years ago. The risk goes mainly to smaller regional banks and investors, increasingly to hedge funds. Hedge fund sales of protection using credit default swaps is around \$ 18 billion in 2006 (about 60% of the market). Greenspan believes that hedge funds improve the “efficiency” of the financial system by influencing where physical capital is invested and changing the way financial markets operate³.

Most investors and hedge funds are not interested in credit in the classical sense. They are interested in generating short-term returns from trading credit spreads and credit correlation. Synthetic credit markets are specifically designed to facilitate this. CDS contracts standardise credit to allow trading in credit much as people trade currencies. CDOs are increasingly structured on standardised credit indices to allow trading in credit spreads and, specifically, a previously un-tradable dimension - credit correlation.

This “churn or burn” gives the impression that the amount of credit in the market is actually large and increasing. The reality is that the same names are used in a wide variety of structured credit products. In truth, there are probably 500-600 names that are actively traded in the CDS market; probably, only 100-150 names are liquid. The churning and re-churning leads to significant concentration risk in credit portfolios. Credit professionals have really taken the issue of “re-cycling” to heart – credit recycling, at least.

Investors, especially hedge funds use leverage to “enhance” returns. Structured credit products are primarily used to provide the required leverage. In 2005, Fitch Rating published a special report on the impact of hedge funds on credit markets⁴. The study provides a fascinating insight into the level of leverage in credit market.

² See FOW (May 2006) at 62

³ See “Greenspan Slams CDS Paperwork” (June 2006) AsiaRisk 4

⁴ See Merrit, Roger, Linnell, Ian, Grossman, Robert and Shiavetta, John (18 July 2005) Hedge Funds: An Emerging Force in Global Credit Markets; Fitch Ratings, Special Report, New York

2. The names traded are limited to around 600 (liquidity is concentrated in maybe 100-150).
3. Liquidity in CDS markets is illusory. Trading and re-balancing of dealer positions drives it. End user participation is limited.
4. CDOs deals in concentration risk and leverage – in the words of one regulator ‘toxic waste’.
5. CDOs are primarily used to provide leverage against credit assets.
6. The modeling of CDOs is complex. Few investors are equipped to deal with the complex products and accurately value the structures.

Any discussion of the risk management implication needs to understand these factors.

New New Things

There is a constant innovation in the new credit market. There is ABS CDO (CDOs of asset backed securities like MBS). There are CFOs (collateralised fund obligations based on hedge funds and private equity funds). It was confusing as CFOs also stood for Chief Fraud Officers as well as Commodity Fund Obligations. There were ECO (equity collateralised obligation based on equity options) and CCOs (Commodity Collateralised Obligations).

A bizarre innovation is the CDO² - a CDO of existing CDO mezzanine notes. It is a re-securitisation. Anything with a “re” in front means that you are paying two lots of fees.

CDO² offer higher returns to the investor by increasing leverage. It allows dealers to rid themselves of residual positions from previous transactions or inventory. No one agrees on how to model and analyse CDO² transaction. There is overlap risk – the same names may be present in the original CDOs. If the underlying CDO is actively managed then the underlying risk may change. You have no idea exactly who you are taking a risk on. CDO² are known as “Russian Dolls”. You keep taking out the dolls one by one. Then, there is nothing there.

A former colleague and I sat through an evangelical presentation on CDO². My colleague from yesteryear leaned across and asked seriously: “Isn’t this is how you get BSE (mad cow’s disease)? We are now on to CDO³ or CDO Cubed (A CDO of a CDO of a CDO). This is a re-re-securitisation. I am waiting for the UFO (Unspecified Fund Obligation) a tranching portfolio of unknown assets designed as a surprise for the investor.

In 2007, product innovation reached new heights - the CPDO (Constant Proportion Debt Obligations). It was more accurately described as “Courageous Proclivity for Dangerous Over-leveraging”. The idea was simple. You put up \$10 million. The trader then sold \$150 million of protection (that is, assumed risk) on 250 names using two credit indices (the cdx and i-Traxx). In case, you hadn’t notice the structure was leverage 15 times. Every 6 months you rolled into new series of the indices.

The rating agencies rated the CPDO ‘AAA’ (as close to divinity as rating agencies allow). Given that the 250 names were investment grade the chance of a default within 6 months (that is, before the indices rolled) was slight. There was the odd issue – credit spread changes, roll costs and the vexed issue of liquidity (\$5 billion of CPDOs required trading in \$75 billion of the index every 6 months). This was somewhat above daily trading levels in the indices currently.

The attraction for investors? During the filming of the original Superman movie, a young Chris Reeve asked Gene Hackman why he had taken the part of Superman’s father. Hackman reputedly remarked: “other than the \$5 million you mean?” For investors the CPDO siren call was AAA paper at LIBOR + 200 bps. There was no risk of course!

The Coming Credit Crash

Temperature is a measure of the environment, both natural and financial. In the age of global warming, credit is “hot”. Being a hedge fund manager, especially in structured credit, is “cool”. The synthetic credit market poses broad systemic risks - as we all know a “downturn” is not a “recession” until you personally lose your job.

Credit markets have enjoyed a stellar run since 2001. People have become foolish or brave and lent to companies at ever lower returns. The credit spreads on emerging market and junk bonds have reached record lows. Credit standards have declined. Bankers talk about “drive-by” bonds - issues usually for weak borrowers that are announced and sold within hours. Telecommunications company newly out of bankruptcy rush to issue 50 year bonds. Not satisfied with 50 years, Danish Oil & Natural Gas ("DONG") issued a *1,000* year bond. Traders immediately dubbed the bond the "ultra long DONG".

It is unlikely that the benign conditions will continue. This time around a deterioration in credit market conditions is likely to be different. The reasons – you guessed it - the technicals of the synthetic credit markets.

The synthetic credit market has experienced a few warning tremors already. After a period of strong returns, the CDO market hit an iceberg around 2000/2001. One investor lost a cool \$1,000 million plus. The reasons - it was the credit cycle, stupid! You were investing in credit. What did you expect? Defaults increased sharply as the US slipped into recession. Creative accounting compounded the losses. CDOs are also massively leveraged. If you buy the 2% equity in a CDO, then you are 50 times leveraged. This compares to the 10 to 12 times that a normal bank uses. Losses and leverage are not good bedfellows.

Holder of senior notes didn't actually lose money. Rising defaults meant that the equity and mezzanine protection was reduced. As equity disappeared and mezzanine became thinner, the senior debt was downgraded. “AAA” notes were re-rated to “A” or lower. The senior notes showed a large mark-to-market loss. Some investor couldn't hold the securities. The glib promises of “liquid” markets proved illusory. You couldn't stay in. You couldn't get out. CDOs quickly came to stand for “Crisis in Debt Obligations”.

By 2005, the synthetic credit market had grown rapidly. Investors were buying up equity and mezzanine pieces in CDOS for higher returns as credit margins fell. Hedge funds and bank trading desks were actively trading correlation. Typically, this involved purchasing CDO equity and mezzanine tranches) and simultaneously selling more senior tranches.

Then, Ford and GM were downgraded to “junk” (non-investment grade). The downgrade had long been anticipated but the effect on credit markets was unexpected. Between late April and early May 2005, the iTraxx credit index spread increased from just around 29 bps pa to 53 bps pa. Credit spreads widening out, on everybody! Average implied credit correlation (whatever that means) on the equity tranche fell from 24% to around 12%. Credit spreads of reference entities within the indices began to move idiosyncratically because of concerns about the automobile sector and the risk of leveraged buyouts by private equity funds.

Many traders had long equity/ short mezzanine positions. Most banks active in CDOs found them with similar positions as a result of normal flow trading. Why? The positions had provided strong carry, up to 15% (\$1.5 million on a \$10 million) position. Between early March and mid May 2005, the equity tranches showed large mark-to-market losses. Remember no one had actually defaulted, at least yet! The loss on the equity tranche should have been offset by gains on the short mezzanine or senior tranche position. The spread on mezzanine tranches actually fell by around 20 bps because of “technical” - changes in credit spreads and correlation. As everybody tried to simultaneously unwind positions, the market was hammered.

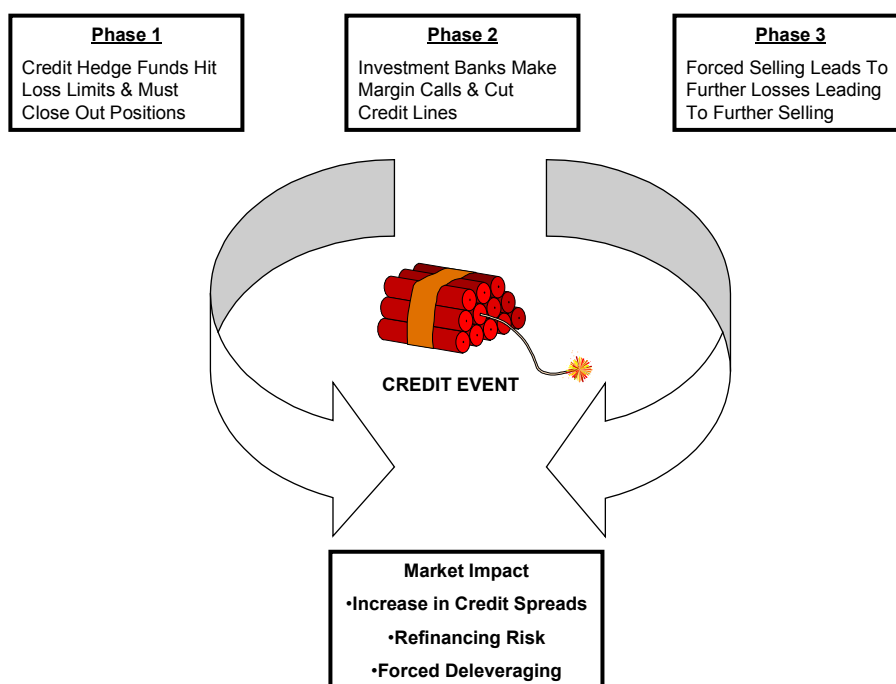
There are a rising number of instances of litigation involving CDOs. Investors claim “misrepresentation” - the banks have mis-sold the products. The banks argue that the losses were due to the “unexpected” downturn in the credit markets. How many of these once fashionable “structured credit products” had been mis-sold? How much of the profits made by the dealers from the trades would be clawed back in court actions? The traders had made their killings. Mark-to-market accounting made sure of that. Many of the traders involved in the trades seemed to have left the industry.

CDO litigation has reached pandemic status. CDO sleuths pore through old deals showing losses looking for a cause of action for the investor. Cynics point out that some of the CDO hunters were actually professionals from yesteryear who had structured and sold similar deals in the first place. “All the better to see you with!” As the wolf in the fairy tale said.

One bank even sued its lawyers alleging “a failure to act with reasonable care and diligence in the structuring and documentation” of a CDO. A research analyst at a US firm filed a complaint against his employer alleging that his employer had attempted to influence his research on CDOs contrary to the law. CDOs are now providing gainful employment for any number of lawyers.

In sport, form is temporary, class is permanent. In financial markets, fashions are dangerous, fundamental values reassert themselves over time. The coming credit crash? This is how it will take shape.

The Coming Credit Crash



Source: Based on Merrit, Roger, Linnell, Ian, Grossman, Robert and Shiavetta, John (18 July 2005) Hedge Funds: An Emerging Force in Global Credit Markets; Fitch Ratings, Special Report, New York

Fundamental imbalances in the world economy will result in a downturn reflected in rising default rates. Alternatively, some event will occur – this is the one in 10,000 year event that occurs *once each year* in markets. This will result in large mark-to-market losses in credit instruments forcing funds to sell positions as they hit loss limits. For leveraged investors, banks that have lent money will make margin calls and reduce credit lines force liquidation of positions.

Banks are deeply embedded in the hedge fund “industry”. Their investment banking arms help set them up, invest in them and trade with them. A whole new service has developed – “prime brokerage” - combining settling and clearing hedge fund trades, execution services and (the most lucrative) lending money to hedge funds. Dealers earning from hedge funds are massive. The banks own proprietary trading desks will also liquidate positions. They behave increasingly like hedge funds. Everybody also is around the same way with the same positions.

Selling pressure will cause further losses as prices fall and mark-to-market losses get worse. The process will repeat. The scale? In the first half of 2006, around US\$ 25 billion was withdrawn directly or indirectly from emerging market investments. Credit markets are far larger than emerging markets in size and complexity. Investors and banks that service them will suffer significant losses.

The process will lead to the reduced availability of credit. For better quality companies, it will mean higher cost of debt. For lower rated companies, it will mean significant refinancing risks. Higher levels of default will affect the real economy that then provides its own feedback loop into the credit market.

Is the “crash” a certainty? I don’t know but it would be reckless for participants in financial markets not to prepare for the contingency.

Early in 2007, the US “sub-prime” market showed the dynamics of the new credit market⁵. HSBC (proud buyers of Household Finance) and New Century Financial warned of ‘difficulties’ with their loan portfolios. The assumptions that sub-prime mortgages have zero defaults proved to be slightly incorrect. The cost of buying insurance on BBB- sub-prime bonds (as per the ABX index) soared to around 960 bps (a rise of 300 bps).

The commentators noted that it was a “knee jerk reaction”; “there was uncertainty about the ‘fair value’ of the index”. One noted that the 2006 vintage of sub-prime bonds was “not one of the industry’s shining moment”. Most investors sought a different vintage to assuage their pain. There was apparently “a lack of natural long-position interest in the lower rated tranches of the index”; translation – investors did not want to lose their shirts! Liquidity evaporated exacerbating losses as investors stampeded toward any available exit. Credit analysts continued to shed light on the ‘troubles’: “We need the US economy to be strong for the *leverage* in the system not to cause a panic..”; “...in the world of structured credit and leveraged positions, things can change very quickly if the facts change.”

Credit derivatives – the synthetic credit market – represents a sublime piece of financial engineering. I agree with ex-Chairman Greenspan on that point. I remain unconvinced that the changes that these instruments have engendered in credit markets are as positive as the advocates of the industry like to say it. In fairness, the jury is still out.

Ludwig van Mises, an Austrian economist from the early part of the twentieth century, once noted: “It may be expedient for a man to heat the stove with his furniture; but he should not delude himself by believing that he has discovered a wonderful new method of heating his premises”. My hope is that credit derivatives do not turn out to be an example of the economic phenomenon that Mises observed. “Beware the coming credit crash!”

The draws on material from *Traders Guns and Money: Knowns and Unknowns in the Dazzling World of Derivatives* by Satyajit Das (2006, FT - Prentice Hall, London, ISBN 0273 70474 5) available at all good book stores, online booksellers or online directly from the publisher at www.pearson-ed.com.

⁵ See “Loan Warning Raises Concerns Over Sub-Prime Market” (14 February 2007) Financial Times

Satyajit Das works in the area of financial derivatives and risk management. He is the author of a number of key reference works on derivatives and risk management. His works include ***Swaps/Financial Derivatives Library – Third Edition*** (2005, John Wiley & Sons) (a 4 volume 4,200 page reference work for practitioners on derivatives) and ***Credit Derivatives, CDOs and Structured Credit Products –Third Edition*** (2005, John Wiley & Sons). He is the author of ***Traders, Guns & Money: Knowns and Unknowns in the Dazzling World of Derivatives*** (2006, FT-Prentice Hall), an insider's account of derivatives trading and the financial products business filled with black humour and satire. The book has been described by the Financial Times, London as "*fascinating reading ... explaining not only the high-minded theory behind the business and its various products but the sometimes sordid reality of the industry*". He is also the author (with Jade Novakovic) of ***In Search of the Pangolin: The Accidental Eco-Tourist*** (2006, New Holland), an unique travel narrative offering passionate and often poignant insights into the natural world and the culture of eco-travel.