Project Report on

CREDIT DEFAULT SWAPS IN INDIA
&
STRUCTURED MICRO SWAP

Submitted By:

Alok Singh
2K12/MBA/08

Under the Guidance of:

Dr. Archana Singh
Assistant Professor

DELHI SCHOOL OF MANAGEMENT
Delhi Technological University
Bawana Road Delhi 110042

CERTIFICATE

This is to certify that the Project Report titled "**Credit Default Swaps In India & Structured Micro Swap"**, is a bonafide work carried out by Mr. Alok Singh of MBA 2012-14 and submitted to Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 in partial fulfillment of the requirement for the award of the Degree of Masters of Business Administration.

Signature of Guide (Dr. Archana Singh) (DSM)

Signature of HOD

Place:

Date:

DECLARATION

I Alok Singh, student of MBA 2012-14 of Delhi School of Management, Delhi Technological University, Bawana Road, Delhi-42 declare that Summer Internship Report on **"Credit Default Swaps In India & Structured Micro Swap"** submitted in partial fulfillment of Degree of Masters of Business Administration is the original work conducted by me.

The information and data given in the report is authentic to the best of my knowledge.

This Report is not being submitted to any other University for award of any other Degree, Diploma and Fellowship

Place: New Delhi Alok Singh

Date: 6th May, 2014

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Alok Singh
MBA (Batch 2012-14)
Delhi School of Management,
Delhi Technological University

ABSTRACT

Credit derivatives are one of the major financial innovations of the last decade. The market for credit derivatives has become the third-largest derivatives market –after interest rate and foreign exchange derivatives– in terms of gross market value. Among credit derivatives, the credit default swap (CDS) is the most popular instrument for trading credit risk. CDSs are being perceived as a double-edged sword and are the subject of a lively discussion in the academic community as well as in the media.

With India growing there has been an excessive demand for capital from all sorts of businesses to further fuel their growth. Banks seek to address this need for capital and in turn assume risk. But for India to continue to grow it's an imperative that we have healthy financial institutions which are able to manage their risks well. Credit derivatives which emerged globally nearly a decade ago and created a rage as effective tools for credit risk management are set to help Indian banks better manage their credit risks.

This research seeks to address the immense relevance of Credit Default Swaps, in the Indian context. The introduction shall provide an overview of the significant features of the recent guidelines on the introduction of CDS. This highlights the implications of the introduction of CDS and the issues that may emerge as the market gains scale.

All these controversial debates and ongoing as well as far-reaching changes make the CDS market an interesting and active field of research. The main purpose of this research is, therefore, to understand CDS, investigate its implications on a developing country like India as well as the impact of a new regulatory frameworks like Big Bang Protocol, Small Bang Protocol, etc. on the CDS market and its participants.

The proposed model named Structured Micro Swaps would help the market participant to trade risk in respect of a reference identity through innovative means of financial health of the reference entity. This model if implemented would not only find more and more investors interested, financial institutions would also be eager to offer such products to large number of investors by limiting the risk transfer & keeping the structure simple. This model would help small investors safeguarding their investments & would also act as a source of growing business for financial industry.

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Table of contents

1. Introduction

A credit default swap (CDS) is a contract between two parties where a protection buyer pays a premium to the protection seller in exchange for a payment if a credit event occurs to a reference entity. CDS are customizable, over-the-counter products and can be written to trigger in the event of bankruptcy, default, failure to pay, restructuring, or any other credit event of the reference entity. Despite the potential to customize CDS, most of the contracts are standardized to increase the tradability of the contract. The contracts are often written to trigger in the case of the specified credit event for any of the debt of the entity, even subordinated debt. In addition, CDS are typically 5 year contracts, although 3, 7, and 10 year contracts are also traded. CDS can be physically settled or cash settled. If a physically-settled CDS is triggered, the protection seller pays the face value of the debt (or another pre-specified amount) to the protection buyer in exchange for the debt itself, which would be worth less than face value given the recent credit event. Triggering a cash-settled CDS would require the protection seller to make a payment to the protection buyer of the difference between the original value of the debt (typically the face value) and the current value of the debt based on a specified valuation method. Unlike hedging with less risky bonds which requires a cash outlay upfront, CDS do not subject the buyer to interest rate risk or funding risk. CDS allow hedgers or speculators to take an unfunded position solely on credit risk.

The CDS market is an important market that has grown dramatically over a short period of time. The market originally started as an inter-bank market to exchange credit risk without selling the underlying loans but now involves financial institutions from insurance companies to hedge funds. The rapid growth was spurred by the ISDA creating a set of standardized documentation. This standardized industry standards and benchmarks which greatly lowered the transactions costs to trading CDS.

The credit default swap (CDS) market is one of the purest and most responsive indicators of corporate financial health. Since the release of ISDA's "Master Agreement," CDS transactions have become simpler and CDS markets have become available to a whole new universe of investors. As Goldman Sachs expressed in a bulletin published in May 2001: "…use of default swaps will increasingly become a necessary component of any successful portfolio management strategy."

A (single name) credit default swap (CDS) allows the contracting partners to trade or hedge the risk that an underlying entity defaults – either a corporate or a sovereign borrower. There are two sides entering into the contract: The protection buyer pays a yearly premium until a pre-defined credit event occurs or until the contract matures. In return, the protection seller assumes the financial loss in case the underlying security defaults or the reference borrower becomes insolvent. In effect, a CDS contract resembles an insurance policy, where one side assumes the risk and the other pays an (insurance) premium. When entering the contract, protection buyer and seller agree upon a premium, which compensates the protection seller for bearing the risk of a default.

1.1 Uses of CDS

Credit default swaps can be used by investors for hedging, speculation and arbitrage:

• Hedging: A CDS contract can be used as a hedge or insurance policy against the default of a bond or loan. An individual or a company that is exposed to a credit risk can shift some of that risk by buying protection in a CDS contract. By buying a credit default swap, the bank can lay off default risk while still keeping the loan in its portfolio. A company's risk management team may advise that the company is overly concentrated with a particular borrower or industry. The company can lay off some of this risk by buying a CDS. Because the borrower—the reference entity—is not a party to a credit default swap, entering into a CDS allows the company to achieve its diversity objectives without impacting its loan portfolio or customer relations.

• Speculation: CDS are also used for the purpose of speculation i.e. to bet for/against a credit event. CDS provide a very efficient way to take a view on the credit of a reference entity. An investor with a positive view on the credit quality of a company can sell protection and collect the payments that go long with it rather than spend a lot of money to load up on the company's bonds. An investor with a negative view of the company's credit can buy protection for a relatively small periodic fee and receive a big payoff if the company defaults on its bonds or has some other credit event.

• Arbitrage: This technique relies on the fact that a company's stock price and its CDS spread should exhibit negative correlation; i.e., if the outlook for a company improves then its share price should go up and its CDS spread should tighten, since it is less likely to default on its debt. However if its outlook worsens then its CDS spread should widen and its stock price should fall. Techniques reliant on this are known as capital structure arbitrage because they exploit market inefficiencies between different parts of the same company's capital structure; i.e., mis-pricings between a company's debt and equity.

1.2 CDS & The late 2000s financial Crisis

Many causes for the financial crisis have been suggested, with varying weight assigned by experts, the United States Senate issuing the Levin–Coburn Report found "that the crisis was not a natural disaster, but the result of high risk, complex financial products; undisclosed conflicts of interest; and the failure of regulators, the credit rating agencies, and the market itself to rein in the excesses of Wall Street."

The 2008 crisis revealed several shortcomings in CDS market practices and structure in United States. Lack of information on the whereabouts of open positions as well as on the extent of economic risk borne by the financial sector is partly to blame for the heavy reactions observed during the crisis. In addition, management of counterparty risk has proved insufficient, as has in some instances the settlement of contracts following a credit event.

The Credit Default Swap market was largely unregulated in United States. Huge amount of exposure was taken by various institutional players, without having corresponding exposure to reference asset. At the risk of stating the obvious, the primary motive of taking such huge positions in CDS compared to the exposure to the reference asset was speculation and not hedging. Since, the regulatory framework and reporting mechanisms were not stringent; there were almost no disclosures of the positions taken in the market by the players. According to Deutsche bank report published in December 2009, at the peak of use of CDS instruments (pre 2008 crisis), gross notional amounts outstanding had reached an impressive USD 58 trillion (June 2007, BIS data), which compares to a notional value of debt securities outstanding worldwide of USD 80 trillion at the time.

2. Evolution

Forms of credit default swaps had been in existence from at least the early 1990 with history of trades carried out by Bankers Trust in 1991. However, volumes picked up in the mid 90's as J.P. Morgan & Co. widely created the modern credit default swap (1994). In that instance, J.P. Morgan had extended a $4.8 billion credit line to Exxon, which faced the threat of $5 billion in punitive damages for the Exxon Valdez oil spill. Mindful of the concentration of default risk as one of the causes of the Savings &Loan crisis; regulators initially found CDS's ability to disperse default risk attractive. In 2000, credit default swaps became largely exempt from by both the U.S. Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC). The Commodity Futures Modernization Act of 2000 specifically stated that CDSs are neither futures nor securities and so are outside the remit of the SEC and CFTC. The market for credit default swaps (CDS), still major credit derivative to date, saw an unprecedented growth until 2007, surpassing the sizes of the U.S. stock market, the mortgage market and the U.S. treasury market together in terms of notional. Major end-users of CDS are banks, hedge funds and insurance companies, which use these instruments to insure their fixed-income portfolios, provide credit protection to others, or to bet on perceived market inefficiencies.

The CDS market was originally formed to provide banks with the means to transfer credit exposure and free up regulatory capital. As the credit default swaps market became more standardized and gained credibility, particularly following smooth credit event settlements in high profile cases such as WorldCom and Enron, more investors entered the market. While banks-through broker-dealers and reinsurance companies-are still both the largest buyers and sellers of credit default swaps, investment management firms are following closely.

Credit Default Swaps (CDS) were originally created in the mid-1990s as a means to transfer credit exposure for commercial loans and to free up regulatory capital in commercial banks. By entering into CDS, a commercial bank shifted the risk of default to a third-party and this shifted risk did not count against their regulatory capital requirements.

In the late 1990s, CDS were starting to be sold for corporate bonds and municipal bonds. By 2000, the CDS market was approximately $900 billion and was viewed as, and working in, a reliable manner, including, for example, CDS payments related to some of the Enron and Worldcom bonds. There were a limited number of parties to the early CDS transactions, so the parties were well-acquainted with each other and understood the terms of the CDS product. In most cases, the buyer of the protection also held the underlying credit asset (loan or bond).

However, in the early 2000s, the CDS market changed in three substantive manners:

- Numerous new parties became involved in the CDS market through the development of a secondary market for both the sellers of protection and the buyers of protection. Therefore, it became difficult to determine the financial strength of the sellers of protection
- CDS were starting to be issued for Structured Investment Vehicles, for example, ABS, MBS, CDO and SIVs. These investments no longer had a known entity to follow to determine the strength of a particular loan or bond (as in the case of commercial loans, corporate bonds or municipal bonds.); and
- Speculation became rampant in the market such that sellers and buyer of CDS were no longer owners of the underlying asset (bond or loan), but were just "betting" on the possibility of a credit event of a specific asset.

The result was that by the end of 2007, the CDS market had a notional value of $45 trillion, but the corporate bond, municipal bond, and structured investment vehicles market totalled less than $25 trillion. Therefore, a minimum of $20 trillion were speculative "bets" on the possibility of a credit event of a specific credit asset not owned by either party to the CDS contract.

Another result was that the original two parties that entered into the CDS contract may very well not be the current holders of the rights of the protection buyer and protection seller. Some CDS contracts are believed to have been passed through 10-12 different parties. The financial strength of all the multiple parties may not be known. Therefore, it has become very difficult to determine, or "unwind," the parties of the CDS in the event of a "credit event."

Finally, a "credit event" that triggers the initial CDS payment may not trigger a downstream payment. For example, AON entered into a CDS as the seller of protection. AON resold its interest to another company. The bond at issue defaulted and AON paid the $10 million due to the default. AON then sought to recover the $10 million from the downstream buyer, but was unsuccessful in litigation - so AON was stuck with the $10 million loss even though they had sold the protection to another party. The legal problem was that the downstream contract to resell the protection did not exactly match the terms of the original CDS contract.

Today, CDS have become the engine that drives the credit derivatives market. According to the British Bankers' Association, the credit default swaps market currently represents over one-half of the global credit derivative market. The growth of the CDS market is due largely to CDS' flexibility as an active portfolio management tool with the ability to customize exposure to corporate credit. In addition to hedging event risk, the potential benefits of CDS include:

- A short positioning vehicle that does not require an initial cash outlay
- Access to maturity exposures not available in the cash market
- Access to credit risk not available in the cash market due to a limited supply of the underlying bonds
- Investments in foreign credits without currency risk
- The ability to effectively 'exit' credit positions in periods of low liquidity

The performance of credit default swaps, like that of corporate bonds, is closely related to changes in credit spreads. This sensitivity makes them an effective hedging tool that can assume exposure to changes in credit spreads as well as default risk. Credit default swaps also have given rise to new arbitrage opportunities, particularly in global markets that do not have the transparency or efficiency of the U.S. credit markets.

2.1 Sub-Prime Mortgages and other Asset-Backed Problems

The problems in the subprime mortgage area which started in the summer of 2007 exposed the problems in the CDS market. As the subprime mortgage and their related CDOs started to have valuation problems, and ultimate defaults, the sellers of protection in the CDS market started to realize that the CDS tied to collateralized subprime mortgages and other CDO-type securities were going to require substantial payments.

For example, Swiss Reinsurance entered into two CDS as the seller of protection for two CDOs totaling $1.5 billion that contained collateralized subprime mortgages and other collateralized assets. The CDO's "credit event" was triggered due to reduced values of the CDO's underlying mortgages. In October 2007, Swiss Re wrote down the value of the CDS a total of $1.1 billion based on the reduced values of the two CDOs (and the subsequent payment required to cover those losses). In April 2008, Swiss Re took another $240 million write-down for continued reduced value in the two CDOs.

2.2 Insurance Company Risks

Insurance company may be exposed as both buyers of protection and sellers of protection in the CDS market. Many insurance companies have entered into CDS as buyers of protection as a hedge against the potential decline in their vast bond holdings, including holdings of ABS, MBS and CDO. The risk to the insurance companies on the buyer side is that the counterparty (seller of protection) will not have sufficient assets to pay if a "credit event" occurs. This is commonly referred to as counterparty liquidity risk. If the counterparty does not have the ability to pay, the insurance company realizes a loss on the bond holding and loses its premiums that it paid for the protection.

The bigger problem most likely occurs when the insurance company is the seller of protection as Swiss Re was in the earlier example. Insurance companies often enter into the CDS as a seller of protection since the CDS pays a stream of premiums that is a consistent source of investment income for the company. Premiums are generally 3%-5% of the value of the underlying asset and are paid on a quarterly basis. However, the risk of payment unknowingly increased when the CDS were related to securities such as CDOs, ABS and MBS which are fraught with structural problems, but were offered as secure investments. In this scenario, the insurance company may have to pay large amounts to the buyer of protection, which dwarfs the stream of premiums received.

The value of a CDS is based on computer modelling of cash flows including the stream of premium payments less projected pay-outs due to anticipated events of default in the underlying debt or, at least, the risk of payment for such events of default. As the stream of premiums is often set by the contract terms, the volatility of values in CDS is primarily due to changes in the risk of projected pay-outs due to events of default. For example, AIG wrote-down the value of its CDS portfolio by $20 billion during the past two quarters. AIG sold credit default swaps to holders of CDOs guaranteeing payments in the event of default in the underlying debt, which were pools of subprime mortgages. In simple terms, as the risk of higher subprime mortgage defaults increased in the CDOs, the credit default swap values decreased due to the risk of anticipated higher pay-outs by the CDS seller (in this example, AIG) to cover the increased events of default.

2.3 Speculation Enters the Market

Speculation entered the CDS market in three forms: 1) using structured investment vehicles such as MBS, ABS, CDO and SIV securities as the underlying asset, 2) creating CDS between parties without any connection to the underlying asset, and 3) development of a secondary market for CDS.

Much has been written about the structured investment vehicle market and the lack of understanding of what was included in the various products. Sellers of protection in the CDS market more than likely did not have sufficient understating of the underlying asset to determine an appropriate risk profile (plus there was no history of these products to assist in determining a risk profile). As it has become clear, the structured investment vehicle market was a speculative market which was not really understood, which led to speculative CDS related to these products.

A larger problem is the pure speculation in the CDS market. Many hedge funds and investment companies started to write CDS contracts without owning the underlying security, but were just a "bet" on whether a "credit event" would occur. These CDS contracts created a way to "short" sell the bond market, or to make money on the decline in the value of bonds. Many hedge funds and other investment companies often place "bets" on the price movement of commodities, interest rates, and many other items, and now had a vehicle to "short" the credit markets.

A still larger problem was the development of a secondary market for both legs of the CDS product, particularly the seller of protection. The problem may be like the AON example above. The problem may be that a "weak link" would occur in the chain of sales even if the CDS terms are the same. The "weak link" is often a speculative buyer that offers to sell protection, but, in fact, is just looking to quickly turn the product to another investor. This problem becomes particularly acute when the CDS is based on structured investment vehicles and firms looking for a quick profit.

An insurance company may unknowingly be pulled into one of these speculative aspects of the CDS market. The insurance company would be viewed as "the deep pocket" and may be asked (or sued) to recover losses by the buyer of protection.

2.4 Litigation Issues

CDS are sold as individual contracts and appear not to be subject to securities laws (further legal research in this area is warranted). There is no regulatory body that governs the buying and selling of CDS. The International Swaps and Derivatives Association (ISDA) does provide recommended CDS documentation guidelines, but the ISDA is not a regulatory body that issues regulations which are enforceable.

Causes of action in the CDS market are most likely tied to the underlying CDS contract(s) in place, in both the original market and the secondary markets, related to the underlying asset that suffered a "credit event." Further, CDS as an industry is in its infancy, especially, regarding the structured investment vehicles and the speculative products and, as such, the litigation history is limited to date and is still being developed.

3. Credit Default Swaps as Credit Derivatives

Derivatives growth in the latter part of the 1990s continued along at least three dimensions. Firstly, new products are emerging as the traditional building blocks – forwards and options – have spawned second and third generation derivatives that span complex hybrid, contingent, and path-dependent risks. Secondly, new applications are expanding derivatives use beyond the specific management of price and event risk to the strategic management of portfolio risk, balance sheet growth, shareholder value, and overall business performance. Finally , derivatives are being extended beyond mainstream interest rate, currency , commodity , and equity markets to new under lying risks including catastrophe, pollution, electricity , inflation, and credit .

Credit derivatives fit neatly into this three-dimensional scheme. Until recently, credit remained one of the major components of business risk for which no tailored risk-management products existed. Credit risk management for the loan portfolio manager mean a strategy of portfolio diversification backed by line limits, with an occasional sale of positions in the secondary market. Derivatives users relied on purchasing insurance, letters of credit, or guarantees, or negotiating collateralized mark- to-market credit enhancement provisions in Master Agreements. Corporates either carried open exposures to key customers' accounts receivable or purchased insurance, where available, from factors. Ye t these strategies are inefficient, largely because they do not separate the management of credit risk from the asset with which that risk is associated.

For example, consider a corporate bond, which represents a bundle of risks, including perhaps duration, convexity, callability, and credit risk (constituting both the risk of default and the risk of volatility in credit spreads). If the only way to adjust credit risk is to buy or sell that bond, and consequently affect positioning across the entire bundle of risks, there is a clear inefficiency. Fixed income derivatives introduced the ability to manage duration, convexity, and callability independently of bond positions; credit derivatives complete the process by allowing the independent management of default or credit spread risk.

Formally, credit derivatives are bilateral financial contracts that isolate specific aspects of credit risk from an underlying instrument and transfer that risk between two parties. In so doing, credit derivatives separate the ownership and management of credit risk from other qualitative and quantitative aspects of ownership of financial assets. Thus, credit derivatives share one of the key features of historically successful derivatives products, which is the potential to achieve efficiency gains through a process of market completion. Efficiency gains arising from disaggregating risk are best illustrated by imagining an auction process in which an auctioneer sells a number of risks, each to the highest bidder, as compared to selling a "job lot" of the same risks to the highest bidder for the entire package. In most cases, the separate auctions will yield a higher aggregate sale price than the job lot. By separating specific aspects of credit risk from other risks, credit derivatives allow even the most illiquid credit exposures to be transferred from portfolios that have but don' t want the risk to those that want but don' t have that risk, even when the underlying asset itself could not have been transferred in the same way.

3.1 Significance of credit derivatives

Even today, we cannot yet argue that credit risk is, on the whole, "actively" managed. Indeed, even in the largest banks, credit risk management is often little more than a process of setting and adhering to notional exposure limits and pursuing limited opportunities for portfolio diversification. In recent years, stiff competition among lenders, a tendency by some banks to treat lending as a loss-leading cost of relationship development, and a benign credit cycle have combined to subject bank loan credit spreads to relentless downward pressure, both on an absolute basis and relative to other asset classes. At the same time, secondary market illiquidity, relationship constraints, and the luxury of cost rather than mark-to-market accounting have made active portfolio management either impossible or unattractive. Consequently, the vast majority of bank loans reside where they are originated until maturity. In 1996, primary loan syndication origination in the U.S. alone exceeded $900 billion, while secondary loan market volumes were less than $45 billion.

However, five years hence, commentators will look back to the birth of the credit derivative market as a watershed development for bank credit risk management practice. Simply put, credit derivatives are fundamentally changing the way banks price, manage, transact, originate, distribute, and account for credit risk. Yet, in substance, the definition of a credit derivative given above captures many credit instruments that have been used routinely for years, including guarantees, letters of credit, and loan participations. So why attach such significance to this new group of products? Essentially, it is the precision with which credit derivatives can isolate and transfer certain aspects of credit risk, rather than their economic substance, that distinguishes them from more traditional credit instruments. There are several distinct arguments, not all of which are unique to credit derivatives, but which combine to make a strong case for increasing use of credit derivatives by banks and by all institutions that routinely carry credit risk as part of their day-to-day business.

First, the Reference Entity, whose credit risk is being transferred, need neither be a party to nor aware of a credit derivative transaction. This confidentiality enables banks and corporate treasurers to manage their credit risks discreetly without interfering with important customer relationships. This contrasts with both a loan assignment through the secondary loan market, which requires borrower notification, and a silent participation, which requires the participating bank to assume as much credit risk to the selling bank as to the borrower itself.

The absence of the Reference Entity at the negotiating table also means that the terms (tenor, seniority, compensation structure) of the credit derivative transaction can be customized to meet the needs of the buyer and seller of risk, rather than the particular liquidity or term needs of a borrower. Moreover, because credit derivatives isolate credit risk from relationship and other aspects of asset ownership, they introduce discipline to pricing decisions. Credit derivatives provide an objective market pricing benchmark representing the true opportunity cost of a transaction. Increasingly, as liquidity and pricing technology improve, credit derivatives are defining credit spread forward curves and implied volatilities in a way that less liquid credit products never could. The availability and discipline of visible market pricing enables institutions to make pricing and relationship decisions more objectively.

Second, credit derivatives are the first mechanism via which short sales of credit instruments can be executed with any reasonable liquidity and without the risk of a short squeeze. It is more or less impossible to short-sell a bank loan, but the economics of a short position can be achieved synthetically by purchasing credit protection using a credit derivative. This allows the user to reverse the "skewed" profile of credit risk (whereby one earns a small premium for the risk of a large loss) and instead pay a small premium for the possibility of a large gain upon credit deterioration. Consequently, portfolio managers can short specific credits or a broad index of credits, either as a hedge of existing exposures or simply to profit from a negative credit view. Similarly, the possibility of short sales opens up a wealth of arbitrage opportunities. Global credit markets today display discrepancies in the pricing of the same credit risk across different asset classes, maturities, rating cohorts, time zones, currencies, and so on. These discrepancies persist because arbitrageurs have traditionally been unable to purchase cheap obligations against shorting expensive ones to extract arbitrage profits. As credit derivative liquidity improves, banks, borrowers, and other credit players will exploit such opportunities, just as the evolution of interest rate derivatives first prompted cross-market interest rate arbitrage activity in the 1980s. The natural consequence of this is, of course, that credit pricing discrepancies will gradually disappear as credit markets become more efficient.

Third, credit derivatives, except when embedded in structured notes, are off-balance- sheet instruments. As such, they offer considerable flexibility in terms of leverage. In fact, the user can define the required degree of leverage, if any, in a credit investment. The appeal of off- as opposed to on-balance-sheet exposure will differ by institution: The more costly the balance sheet, the greater the appeal of an off-balance-sheet alternative. To illustrate, bank loans have not traditionally appealed as an asset class to hedge funds and other nonbank institutional investors for at least two reasons: first, because of the administrative burden of assigning and servicing loans; and second, because of the absence of a repo market. Without the ability to finance investments in bank loans on a secured basis via some form of repo market, the return on capital offered by bank loans has been unattractive to institutions that do not enjoy access to unsecured financing. However, by taking exposure to bank loans using a credit derivative such as a Total Return Swap, a hedge fund can both synthetically finance the position (receiving under the swap the net proceeds of the loan after financing) and avoid the administrative costs of direct ownership of the asset, which are borne by the swap counterparty. The degree of leverage achieved using a Total Return Swap will depend on the amount of up-front collateralization, if any, required by the total return payer from its swap counterparty. Credit derivatives are thus opening new lines of distribution for the credit risk of bank loans and many other instruments into the institutional capital markets.

4. Basic Credit Derivative Structures & Applications

The most highly structured credit derivatives transactions can be assembled by combining three main building blocks:

1 Credit (Default) Swaps

2 Credit Options

3 Total Return Swaps

The most common type of credit derivative is the credit default swap. A credit default swap or option is simply an exchange of a fee in exchange for a payment if a "credit default event" occurs. Credit default swaps differ from Total Rate of Return Swaps in that the Investor does not take price risk of the Reference Asset, only the risk of default. The Investor receives a fee from the Seller of the default risk. The Investor makes no payment unless a Credit Default Event occurs.

The traditional or "Plain Vanilla" credit default swap is a payment by one party in exchange for a credit default protection payment if a credit default event on a reference asset occurs. The amount of the payment is the difference between the original price of the reference asset and the recovery value of the reference asset. The following schematic shows how the cash flow of this credit derivative transaction work:

If the fee is paid up front, which may be the case for very short dated structures, the agreement is likely to be called a credit default option. If the fee is paid over time, the agreement is more likely to be called a swap. Unless two counterparties are actually swapping and exchanging the credit default risk of two different credits, I prefer to call the former structure a credit default option. Cash flows paid over time are nothing more than an amortization of an option premium. Because the documentation references ISDA master agreements, however, swap terminology has crept into the market. Since the credit derivatives business at many commercial and investment banks is often run by former interest rate swap staff, the tendency to use swap terminology persists. Therefore, I will most often refer to these transactions as credit default "swaps".

The credit default premium is usually paid over time. For some very short dated structures, the credit default premium may be paid upfront. In fact, professionals new to this market often ask if the premium should be paid upfront, instead of over time. After all, if the credit defaults, the default protection Seller will get no additional premiums.

The credit default option or swap is a contingent option, and not to be confused with an American option. A Termination Payment is only made if a Credit Event occurs. If the credit event does not occur, the default protection Seller has no obligation. The premium can be thought of as the credit spread an Investor demands to take the default risk of a given Reference Asset. If the Investor bought an asset swap, the Investor would earn a spread to his funding cost representing the compensation, the premium, the Investor would need to take the credit default risk of the Reference Asset in the asset swap.

For an American option, the premium is paid upfront (or over time, but with the proviso that the total premium is owed, even if exercise occurs before the expiration date). The American option can be exercised any time that it is in the money. The holder of the option does not have to exercise, however, and can wait and hope the option will go further in the money. If the market reverses direction, the American option can again become out-of-the money, and the holder who failed to exercise the option when it was in the money cannot exercise. With a credit default option, once the trigger event has occurred, the holder must exercise and the option stays exercisable.

Default Protection can be purchased on a loan, a bond, sovereign risk due to cross border commercial transactions, or even on credit exposure due to a derivative contract such as Counterparty credit exposure in a cross currency swap transaction. Credit protection can be linked to an individual credit or to a basket of credits.

At first glance, a credit default swap or option looks structurally simpler than a total return swap. We already know that a total return swap is simply a form of financing. In this chapter we will explore the complex, various, and interesting features of the credit default swap and the credit default option market. Complex? Various? Wait a minute. Didn't I mention that a total return swap already has a credit default swap imbedded in its structure? After all, if my Counterparty is taking the default risk of a bond or a loan, I have reduced my credit exposure to that reference asset. We understand everything there is to know about credit default swaps already. Don't we?

That is the question most practitioners ask themselves the first time they enter into a credit default contract. The first key difference is that although the price or premium of a credit default swap or option may increase, it is never actually in-the-money until a credit default event as defined by the confirm language has occurred. That seems like a knock-in option or a knock-in swap, which is a type of barrier option. Knock-in options have been around since the 1960's. When a market price reaches a pre-determined strike price, the barrier, the knock-in option comes into existence. But this "knock-in" is not linked to traditional market factors, but rather to either credit default or a credit "event". If the option "knocks in" then, and only then, is the option in the money. The termination payment is usually not binary or pre-defined, although we will explore exceptions in this chapter. The termination payment is linked to a recovery value or recovery rate for the reference credit or reference credits involved.

The terminology is further complicated by the US market's use of the word swap to refer to an exchange of one bond for another (usually accompanied by a cash payment to make up for any discrepancy in relative values), and the UK market's use of the term "switch" for the same transaction. US market practitioners are often mystified when they first hear of "asset swap switches", an exchange of one asset swap package risk for another asset swap package risk. We will discuss this product later in this chapter.

As we will see later, a variety of structures have evolved in this market. The risk characteristics of these structures are different from the structures we have discussed so far and merit close scrutiny. One structure known by such names as: Digital, binary, all-or-nothing, and the zero-one structure has

a substantial amount of risk. The Investor loses the entire notional amount – not merely coupon and some principal loss- if there is a default event.

Other structures such as the 'par value minus recovery value' structure can leave a position of premium bonds partially unhedged or can over hedge a position of bonds trading below par. Exposure management officers evaluating the suitability and appropriateness of such deals must be fully aware of the full exposures implied in these transactions.

The credit swap becomes even more interesting when one realizes that the term "default event" does not even apply to many credit agreements. The event, which triggers a termination payment under the terms of the credit default swap confirmation, is negotiable. The event may be defined as a spread widening, an event in a foreign country that may cause its sovereign debt to decline in price, or just about any event upon which the two parties can agree and define a price. Even the termination payment is negotiable. It may be pre-set at a fixed amount, or based on the recovery value of a reference asset, to mention only two structures.

Some credit "default" options, those linked to spread widening, for instance, sound suspiciously like put options which are struck out-of-the-money.

4.1 Importance of the Default Protection Seller

If an Investor is purchasing credit default protection, what kind of credit default protection Seller is most desirable? If prices were the same, a default protection Seller with a triple A credit rating and a 0% correlation with the asset the Investor is trying to hedge would be the most desirable. But as we saw in the section on Total Rate of Return Swaps, a default protection Seller with these characteristics will probably sell very expensive protection. Therefore, it is beneficial to relax the criteria and find another provider. The Investor should be aware that there are unsuitable providers, however.

There are unsuitable applications, too. One must as the right questions before trying to apply a solution. Credit derivatives are sometimes seen as the panacea, the answer to any finance problem, which cannot be solved by conventional market strategies.

The whole point of using credit derivatives is to diversify credit risk.

Asset swap spreads are independent of the credit quality of the Investor. A market asset is swapped to a LIBOR based floating coupon, for instance. The market is indifferent to the credit quality of the Investor, who pays cash up front for the asset swap package. Unlike an asset swap, the premium paid to the "Investor", the credit default protection Seller, is sensitive to the credit quality of the Investor. The premium is further sensitive to the correlation between the "Investor" and the reference asset on which one is buying the credit default protection. Depending on the structure, the credit default swap contract may require an un-collateralized payment by the "Investor" if there is a credit default event.

5. Understanding Risk in Credit Default Swaps

Credit derivatives offer unique opportunities and risks to investors. They allow investors to have exposure to a firm without actually buying a security or loan issued by that firm. Because the exposure is synthetic, the transaction can be tailored to meet investors' needs with respect to currency, cash flow, and tenor, among other things. However, if the transaction is not structured carefully, it may pass along unintended risks to investors. Significantly, it may expose investors to higher frequency and severity of losses than if they held an equivalent cash position. Moody's has rated numerous structured transactions — mostly synthetic collateralized debt obligations (CDOs) and credit-linked notes (CLNs) — whose key feature is a cash-settled credit default swap. Under the swap, losses to investors are determined synthetically, based on "credit events" occurring in a reference portfolio.

Investors' risk, thus, is driven largely by the definition of "credit events" in the swap. The definitions published by the International Swaps and Derivatives Association (ISDA) are, in many respects, broader than the common understanding of "default," and thus impose risk of loss from events that are not defaults. For example, Moody's — and much of the market — considers certain types of "restructuring" events to be "defaults." However, the current ISDA definition of "restructuring" is broader than Moody's definition of "default," and includes events that would not be captured by a Moody's rating.

Likewise, the ISDA definitions for other credit events — e.g., bankruptcy, obligation acceleration, and obligation default — are broader than Moody's definition of "default." For the Moody's rating of a reference portfolio to capture the risks to investors, the "credit events" should be narrowed such that they are consistent with "defaults" — the events captured by a Moody's rating.

Many of the risks in these transactions are driven by moral hazard — the inherent conflict interest that exists because the sponsoring financial institution (which is buying protection from investors) determines when a loss event has occurred as well as how much loss is imposed on investors. The sponsor's incentive, of course, is to construe "credit events" as expansively as possible and to calculate losses as generously as possible. Moody's considers these risks carefully when issuing its ratings. In addition to tightening the credit event and loss calculation provisions, these risks can be addressed by increasing transparency and providing mechanisms for objectively verifying loss determinations and calculations.

Setting aside moral hazard, risks also arise based on the inherent difficulty in valuing a defaulted credit to determine the extent of loss to investors. Calculated losses may vary based on liquidity, market conditions, and the identity of the parties supplying bids. In analysing a credit default swap, Moody's looks carefully at the methods and procedures for calculating loss given default, to ensure that all calculations are meaningful, realistic, and fair.

The ISDA Credit Derivatives definitions, as currently drafted, do not effectively unbundle "credit risk" from other risks. If not structured carefully, a credit default swap using the ISDA definitions can pass along risks other than "credit risk." For example, the swap may pass along the risk of loss following credit deterioration short of default. Such a risk is not necessarily captured by Moody's rating of the

reference portfolio, and, with some exceptions (e.g., when the loss event is a rating downgrade) is not readily capable of being measured.

The capital markets have an enormous capacity for absorbing credit risk, and this capacity has only been partially tapped by the credit derivatives market. In Moody's opinion, for capital markets investors to participate fully in the credit derivatives market, the risks inherent in credit default swaps must be more precisely defined, more transparently managed, and more readily quantifiable.

A swap can be structured to provide for either physical settlement or cash settlement following a credit event. In a physically settled swap, the buyer of protection delivers to the seller an obligation of the reference entity that has experienced a credit event. The seller pays par for that asset, thus reimbursing the buyer for any default-related loss that it would otherwise suffer In a cash-settled swap, the buyer of protection is not required to deliver the defaulted credit, but values the credit — for example, by marking it to market or by using a final workout value — and is reimbursed for the loss (measured by the difference between par and the value following default).

Through synthetic CDOs or CLNs, financial institutions utilize credit default swaps to "buy" credit protection — usually from the capital markets in the form of issued securities, but also directly from counterparties in the form of over-the-counter swap transactions. The structure allows financial institutions to remove credit exposure from their balance sheets while retaining ownership of the assets, and thus manage risk more efficiently, and obtain economic and/or regulatory capital relief.

In the typical structure, the sponsoring financial institution (the entity seeking protection against credit losses) sets up a special purpose vehicle (SPV) to serve as counterparty to the credit default swap (making the SPV the provider of protection). The SPV is funded with the proceeds of notes issued to investors; it will use those proceeds to make credit event payments to the financial institution, and to return any remaining principal to investors at the deal's maturity. The proceeds of the securities are typically invested in highly rated securities in such a way that the ratings of the notes can be "de-linked" from the rating of the sponsoring institution.

Under the swap, the SPV is the "seller" of protection, and the financial institution is the "buyer". The swap references a credit exposure, or portfolio of credit exposures, for which protection is being provided. The arrangement is similar to an insurance policy, in which the financial institution is buying insurance against losses due to default in its portfolio. The credit exposures can be assets physically owned by the sponsor (e.g., loans, bonds, other securities), exposures to counterparties (e.g., by way of currency or interest rate swaps), or synthetic exposures (e.g., if the sponsor has sold protection on particular assets by way of credit default swaps). Typically, in a synthetic CDO, the financial institution retains the first loss piece, and the mezzanine tranches are securitized and sold to investors. There is often a "super senior" piece that is either retained by the sponsor or passed off to a counterparty by way of a swap.

There are a number of key variations on the structure that can have a significant impact on the analysis of the transaction:

- The reference pool can be static — remaining the same throughout the life of the transaction — or it can be dynamic, permitting removal and substitution of the individual reference credits pursuant to portfolio guidelines.
- The swap can provide for ongoing cash settlement — as defaults happen and losses are incurred — or it can provide for cash settlement only at the maturity of the deal.
- The procedure and timing for determining severity of loss on a defaulted credit reference can vary — from a bidding procedure that takes place shortly after a default, to reliance on a final "work-out" value established after the formal workout process has been completed.
- The swap can reference specific credits, or it can reference the general, unsecured debt of a reference entity.
- If the swap references the general, unsecured debt of an entity, credit events under the swap can be triggered by defaults only on "bonds or loans", on a broader class of "borrowed money," or on an even broader class of "payment obligations."
- Perhaps most significantly, the definition of "credit event" can be tailored to meet the needs of the various parties to the transaction. While each of these variations is important, the most heavily negotiated component is most often the designation and characteristics of the "credit events" that will trigger a cash settlement under the swap.

6. Moody's Definition of Default and Loss

In assigning ratings and compiling its historical default statistics, Moody's considers the following events to be defaults:

• Any missed or delayed disbursement of interest and/or principal;

• Bankruptcy or receivership; and

• Distressed exchange where

(i) the borrower offers debt holders a new security or package of securities that amount to a *diminished financial obligation* (such as preferred or common stock, or debt with a lower coupon or par amount), or (ii) the exchange has the apparent purpose of helping the borrower avoid default. Severity of loss is defined as the difference between par and the recovery rate — measured as a percentage of par — following default. Moody's uses the market value of defaulted instruments, approximately one month after default, as an estimate of recovery rate.5 These are the events that constitute "defaults" in Moody's historical studies, and these are the events that can be predicted by a Moody's rating.

7. ISDA Credit Events

The 1999 ISDA Credit Derivatives Definitions6 currently list six “credit events” that can be incorporated into credit swaps:

• Bankruptcy;

• Failure to pay;

• Restructuring,

• Repudiation/moratorium;

• Obligation default; and

• Obligation acceleration.

While these are the so-called “standard” credit events, their inclusion and scope are always heavily negotiated in the context of Moody’s-rated synthetic CDOs and CLNs. The choice and characterization of these events is crucial, because they determine the probability of a loss occurring under the swap, as well as the extent of any such loss. Some of the ISDA credit events are consistent with Moody’s definition of “default,” and some are not.

Bankruptcy

The definition of “Bankruptcy” in the ISDA Credit Derivatives Definitions was copied wholesale from the ISDA Master Agreement. Thus, while most of the definition is consistent with a “default,“ there are some components that are not.

The last clause of the definition, a catchall provision, is problematic because it makes a “credit event” any action by the reference entity *“in furtherance of, or indicating its consent to, approval of, or acquiescence in”* one of the listed bankruptcy events. This clause exposes investors to potentially greater risks; because it includes events that are vague, difficult to identify, and do not clearly indicate default.

Another potentially troublesome item in the ISDA bankruptcy definition is “insolvency.” The ISDA definition does not specify what is intended by “insolvency.”

However, there are different definitions — for example, by reference to balance sheet or income statement tests — and, depending on the definition used, the timing of an insolvency “credit event“ could vary. Under a very broad definition, it is conceivable that an “insolvency” could occur without being followed by an actual bankruptcy or failure to pay. Thus, a broad interpretation could lead to a “credit event“ being called under the swap when no “default“ has actually occurred.

Failure to Pay

The ISDA "failure to pay" definition is consistent with Moody's definition of "default." The key issue under this definition is materiality — i.e., the missed payment should be in an amount that is material, such that it would be captured by a Moody's rating.

To ensure that a credit event is not triggered by the failure to pay a trivial amount, a minimum amount — referred to as the "Payment Amount" in the ISDA definitions — should be specified under the swap. While there is a standard minimum amount, that amount may not be appropriate in all transactions, and it should be considered carefully for each swap. In some cases, the choice of a Payment Amount will depend on whether the swap is referencing (1) a specific obligation, (2) bonds or loans, (3) borrowed money, or (4) the more general "payment obligations" — all of which are options under the current ISDA documentation. A Moody's rating will capture the risk of a "failure to pay" on the obligations rated by Moody's — usually bonds and loans. However, it may not capture the risk of non-payment on all of an entity's payment obligations — e.g., disputed trade obligations, certain fees, etc. An entity may choose not to make a payment on one of its "payment obligations" for reasons other than credit problems. To ensure that a Moody's rating will capture the risk of payment default, the category of obligations being referenced should be carefully considered. In some circumstances, a higher minimum payment amount may be appropriate.

Restructuring

Moody's considers certain types of "restructuring" events — known as "distressed exchanges" — to be defaults, and captures those events in its ratings. Thus, Moody's does not believe that "restructuring," as a concept, needs to be excluded from the credit derivatives definitions. In many respects, however, the current ISDA definition of "restructuring" is broader than Moody's definition of "distressed exchange," and includes events that are not captured by a Moody's rating.9 Thus, for a Moody's rating of the reference portfolio to capture the risk to investors, the definition of "restructuring" should be tightened to make it consistent with "distressed exchange."

Under the current ISDA "restructuring" definition, five events can qualify as a "restructuring." Each event must meet the following requirements to qualify as a "credit event:" the restructuring (1) must not have been provided for in the original terms of the obligation, and (2) must be the result of a deterioration in the obligor's creditworthiness or financial condition. While these requirements are helpful in restricting the events that could constitute "credit events," they are not sufficient to prevent overbroad applications of the definition.

The first three events under the definition — restructuring of an obligation that leads to (1) a reduction in interest payment amounts, (2) a reduction in principal repayment amounts, or (3) a postponement or deferral of interest or principal payments — can constitute "distressed exchange" defaults under Moody's definition. Any one of these events, by itself, would arguably lead to a "diminished financial obligation." However, if combined with other changes to the obligation, they may not. For example, an obligation that has been restructured to defer principal payments *may not* be considered a "diminished

financial obligation" — and thus not a "distressed exchange" — if the lender has been compensated for the deferral.

Thus, any "restructuring" definition should look at the totality of the circumstances — e.g., whether the lenders/investors have been compensated for the reduction or deferral — to determine whether the restructured obligation is truly a "diminished financial obligation."

The fourth ISDA "restructuring" event — a restructuring that leads to a change in an obligation's priority, causing it to be subordinated — can be overbroad. The subordination of a debt obligation to equity or preferred stock would clearly be a "default." (It would probably lead to a failure to pay as well — thus, rendering this "restructuring" event unnecessary). However, a restructuring that merely lowers an obligation from a senior to a subordinated position in the capital structure (but not to equity) could also trigger a "credit event" under the current ISDA definition.

Repudiation/Moratorium

Repudiation/moratorium was included in the ISDA definitions mainly to address actions by sovereign lenders, and thus, is not included in many synthetic CDO's, where the exposure is primarily to corporate credit. When applied to corporate credits, repudiation/moratorium is generally consistent with Moody's views of default — although it is unclear how it would be different from "failure to pay." However, there is concern with respect to the provision that includes as a credit event when a borrower "challenges the validity of . . . one or more Obligations." This provision could be construed over broadly to include situations where there is a legal dispute over a borrowing — in which, for example, the borrower unsuccessfully challenges some terms of the borrowing — that does not ultimately lead to a failure to pay interest or principal. Moody's would not necessarily consider such an event to be a default.

In addition, if this event is to be included, the "Default Amount," or minimum amount that can be subject to a repudiation in order to trigger a credit event, should be material, so that the repudiation of a trivial amount will not trigger a credit event.

Obligation Default

ISDA defines "Obligation Default" as a *non-payment* default — i.e., a default other than a failure to pay — that renders an obligation *capable* of being accelerated. Moody's has not been asked to rate a transaction that includes this credit event, and the market has moved away from including it. This is because the event is much broader than Moody's — and most of the market's — definition of "default."

Most bonds and loans contain representations, warranties, financial covenants, and non-financial covenants, the violation of which can give lenders the *right* to accelerate. While such violations can indicate credit deterioration (e.g., failure to maintain a minimum financial ratio, taking on additional debt, etc.) Many such violations can be technical (e.g., failure to send a report).

Of course, Moody's ratings do not capture the probability of a technical violation occurring.

Moreover, even a covenant violation that represents serious credit deterioration would not be captured if the obligation is still current on interest and principal, and has not carried out a “distressed exchange” or become bankrupt. Moody’s simply does not have data concerning such events that would allow it to assign a rating to them.

Because inclusion of this event forces counterparties to mark-to-market an obligation before a payment default occurs, it will cause investors (i.e., “sellers” of credit protection) to take losses that they would not incur if they actually bought and held the obligation.

For example, even though an obligation has suffered credit deterioration giving rise to a financial covenant violation, there is still a good chance that the obligation will pay both interest and principal in full. However, at the time of the violation, market bids will likely come in below par, because of concerns about the credit, or because of market sentiment, interest rate movements, or other systematic factors. Thus, while an investor that actually holds the obligation to maturity will get out whole, the investor “selling” protection will not.

Obligation Acceleration

“Obligation acceleration” is similar to “obligation default.” However, to trigger a credit event, the *non-payment* default — i.e., default other than a failure to pay — must lead to a reference loan, bond, or other obligation *actually* being accelerated. Like obligation default, an acceleration, *by itself*, would not be captured by a Moody’s rating. A failure to pay, bankruptcy, or distressed exchange following acceleration *would* be captured, but the acceleration itself would not.

Acceleration is simply a lender’s exercise of its contractual right, under certain circumstances, to declare a debt immediately due and payable.14 As with “obligation default,“ the events giving rise to a right to accelerate under “obligation acceleration” — defaults other than a failure to pay — are not considered by Moody’s to be “defaults” and would not be captured by a

Moody’s rating. Consequently, a lender’s decision to exercise its acceleration right following such events is not captured either. There are three possible outcomes following an acceleration: (1) the borrower repays less than it owes (or becomes bankrupt), (2) the debt is renegotiated, or (3) the borrower repays everything that it owes. The first outcome is already captured by other credit events — failure to pay and bankruptcy.

The second outcome, depending on the circumstances, may be a “distressed exchange” restructuring. The third outcome — the lender receives everything it is owed — is not a default. Because the first and second outcomes are already captured by other credit events, and the third outcome is not a default, it is unclear what additional scenarios this “credit event“ is intended to capture.16 It has been suggested that the purpose of this credit event is “timing” — i.e., because many accelerations are followed closely by either a payment default, bankruptcy, or restructuring,including this event allows credit protection payments to be made earlier than they otherwise would. However, *if* the acceleration precipitates a true default, the default is likely to occur, at most, two or three months later, and it is difficult to justify why a counterparty cannot wait until it has suffered a true credit event to be compensated.

More fundamentally, an acceleration where the lender receives everything it is owed — clearly not a "default" — would trigger a credit event under the ISDA definition. While historically rare, there have been instances of *bond* accelerations where investors have been paid par, thus leaving them with no loss. Moody's has not compiled its own data on such events, because they are not "defaults." Moreover, while Moody's is unaware of any data with respect to accelerations of *loans and private placements*, anecdotal evidence suggests that acceleration followed by total recovery — i.e., the lender gets all of its money back — is more common. Inclusion of "obligation acceleration" as a credit event would not be as problematic if the market value of an obligation is always par when the lender will be fully paid off following acceleration.

If that were the case, there would never be any loss following such credit events. However, it is very possible that the market value would come in at less than par — even if the accelerated debt is fully repaid.

Another concern with "obligation acceleration" is that its inclusion as a credit event may create additional incentives. A protection "buyer" that accelerates a reference obligation will be reimbursed regardless of the outcome. Indeed, the "buyer" could get all of its money back on the loan *and* get additional compensation if bids on the non-accelerated debt come in at less than par.

Because occurrence of the "obligation acceleration" credit event is often within the protection "buyer's" control, the additional incentive means that the event is more likely to occur in the presence of a swap than under normal circumstances. If the "buyer" has the *right* to accelerate, it is more likely to exercise that right if it can receive additional compensation for doing so. Thus, any historical data regarding the likelihood of acceleration would probably understate the likelihood of its occurring when it is covered by a swap.

"Obligation Acceleration" and the Problem of Basis Risk

Sponsors of synthetic CDO and CLN transactions can fall under two different categories: (1) those who are credit default swap "end users," and (2) those that are not. The "end users" are buying protection on *cash* exposure to the reference credits. In other words, they have actual exposure to the credits through loans or other business relationships with the obligors. Sponsors that are not "end users" are buying protection on *synthetic* exposure to the reference credits. They are exposed to the credits by way of credit default swaps — i.e., they are "selling" protection on the credits to *other* counterparties, and if there is a credit event on those swaps they will be required to make a credit event payment to the other counterparties.

"End user" sponsors recognize that "obligation acceleration" is not necessary, and, unless required to do so by regulators, have typically not asked for its inclusion their transactions. However, institutions that are hedging, or buying protection on, synthetic exposure have argued that inclusion of this event is necessary, because most of the swaps giving rise to their exposure include "obligation acceleration." If the synthetic CDO or CLN does not include this credit event, there are potential loss events for which

they are not hedged. Believing this additional risk to be significant, these institutions are often unwilling to take the incremental basis risk and have asked Moody's to rate the transactions with this event. Moody's is reluctant to rate a credit event that is not a default and is only present because of a quirk in the ISDA definitions that has become "standard." The optimal solution is to remove "obligation acceleration" all together, or for it no longer to be "standard." However, Moody's has been able to rate transactions including this event with the following modifications to the ISDA definition:

- Acceleration is only a "credit event" if, after the later of a minimum time period and the time to the next payment date on the obligor's obligations, the accelerated obligation has not been fully repaid. The rationale is that if the accelerated obligation is not fully repaid by the next payment date, it will likely never be fully repaid.
- Following acceleration, instead of cash settlement, the protection buyer delivers to the SPV an obligation of the reference entity (1) that has been accelerated, or (2) if the delivered obligation has not been accelerated, that matures earlier than the transaction matures. The SPV would only be permitted to sell the delivered obligation if it actually defaults; otherwise, it must hold it until it matures or is paid down.21 This should remove the incremental market risk inherent in this event under a cash settled swap. Moody's has considered numerous alternatives to these solutions, and additional solutions may be acceptable.22 However, the best solution would be to exclude this event all together.

The Problem of "Soft" Credit Events: Synthetic vs. Cash

Credit default swaps are intended to mimic the default performance of a reference obligation.

Thus, for example, owning a CLN is often considered equivalent to having a cash position in the underlying reference obligation, except that the maturity, coupon, or other cash flow characteristics may be different. If an investor holds the CLN to its maturity, it should have the same risk of loss as if it held the reference obligation to its maturity. Put another way, the CLN should only default if the reference obligation defaults. However, if so-called "soft" credit events — events that are not truly "defaults" — are included in the swap that will not be the case.

Selling protection through a cash-settled credit default swap — e.g., owning a CLN (or a synthetic CDO) — can actually be more risky than actually owning the reference obligation(s).

This is because cash-settled credit default swaps essentially force investors to "cash out" of their position following a credit event. If the swap includes credit events associated with credit deterioration short of default — e.g., a broadly defined restructuring or obligation acceleration — the CLN can default (the investor will receive less than the full part of the CLN) when the reference obligation has not.

Thus, if a cash-settled credit default swap includes "soft" credit events, the investor may suffer losses that are not captured by a Moody's rating of the reference obligation(s), subjecting it to greater risk of loss than if it actually owned the reference obligation(s).

8. Moral Hazard

In virtually every synthetic CDO and CLN, the "buyer" of protection — the sponsoring financial institution — determines whether a credit event has occurred in the reference portfolio. More significantly, the "buyer" calculates the severity of its losses following a credit event, and how much the SPV will be required to pay under the swap (i.e., how much investors will lose under the transaction). Because of the moral hazard inherent in such an arrangement, credit swaps should be structured such that the occurrence and severity of losses can be objectively and independently identified, calculated, and verified.

- Occurrence Of A Credit Event. Moody's generally believes that, in order for a credit event payment to be triggered, the occurrence of the event should be published in (1) a well-known news source, (2) a corporate filing, or (3) a court document. This should deter protection "buyers" — acting either alone or in collusion with a reference obligor — from staging credit events for the sole purpose of being reimbursed under the swap. The rationale is that parties will be less likely to assert spurious credit events if the events have to be made public. There may be instances, however, where there is no published information available regarding a credit event. For example, the reference obligor may be a private, unrated company whose only outstanding debt is to a bank. There may be no press release, no public corporate filings, and no court documents to support the existence of the credit event. However, the sponsor should be able to get protection under the swap for that credit if there is a true default. Thus, in some limited circumstances, Moody's-rated synthetic CDO's provide that, for certain credit events, if there is no "publicly available information," at least one senior officer who is part of the sponsor's credit underwriting or monitoring department may provide written certification that the credit event has occurred and that the obligation has been treated internally as a defaulted asset. The certification may also contain contact information at the defaulted obligor so that the protection "seller" can verify the claim and, if necessary, dispute it.
- Loss Severity Following Credit Event. The amount of loss following default should be calculated either (1) by obtaining bids from third parties, or (2) by going through a formal workout process to arrive at a workout value. The former is the most common. Because it may not always be possible to obtain public bids, however, most transactions provide for contingency calculation methods. These methods are often a formal appraisal by an objective third party. The "buyer" should not be the sole source for determining its losses under the transaction. The existence of a meaningful dispute resolution mechanism will also help to eliminate the moral hazard inherent in these situations.
- The Case of Blind Pools. Occasionally, because of regulatory and/or legal restrictions, a bank may not be permitted to disclose certain names in a reference pool. Disclosure to Moody's has usually been permitted, but the bank is not permitted to disclose to investors or others associated with the deal. This becomes a serious problem when a credit event occurs with respect to one of those names. It may be difficult to obtain a meaningful bid — and thus mark the defaulted name to market — without disclosing the name to potential bidders.

9. Clearinghouses, Counterparty Risk & Systematic Risk

Although credit default swaps can be valuable tools for managing risk, they can also contribute to systemic risk. One concern is that systemically important institutions may suffer devastating losses on large unhedged CDS positions. Counterparty risk, which arises when one party to a contract may not be able to full fill its commitment to the other, is also a systemic concern. The failure of one important participant in the CDS market could destabilize the financial system by inflicting significant losses on many trading partners simultaneously. Derivatives dealers, for example, are on one side or the other of most CDS trades and, according to data from DTCC, dealers hold large credit default swap positions. If a large dealer fails, whether because of CDS losses or not, counterparties with claims against the dealer that are not fully collateralized may also be exposed to substantial losses.

The immense losses AIG suffered on credit default swaps during the current crisis (and the resulting increase in the collateral it was obligated to post) are a more vivid example of systemic risk. Apparently, regulators decided to subsidize AIG after its losses because they feared that some of AIG's CDS counterparties would be irreparably harmed if AIG were unable to fulfill its commitments. Of course, financial institutions try to control their exposure to such losses, but risk management can fail.

After two counterparties agree on the terms of a credit default swap, they can "clear" the CDS by having the clearinghouse stand between them, acting as the buyer of protection for one counterparty and the seller of protection to the other. Once the swap is cleared, the original counterparties are insulated from direct exposure to each other's default, and rely instead on the performance of the clearinghouse. Thus, with adequate capitalization, the clearinghouse can reduce systemic risk by insulating the financial system from the failure of large participants in the CDS market.

A clearinghouse not only insulates one counterparty from the default of another, it can lower the loss if counterparty does default. Suppose, to pick an ideal example, that Dealer A has an exposure on credit derivatives to Dealer B of $1 billion, before considering collateral. That is, if Dealer B fails, then A would lose $1 billion. Likewise, B has an exposure to Dealer C of $1 billion, and C has an exposure to A of $1 billion. Without a clearinghouse, default by A, B, or C leads to a loss of $1 billion.

With clearing, however, the positive and negative exposures of each counterparty cancel, and each poses no risk to anyone, including the clearinghouse. In practice, counterparty exposures are to some degree collateralized. This lowers the potential losses from a default, but collateral is expensive and Economists have generally believed that financial derivatives increase economic welfare by facilitating risk-sharing among investors, by improving price discovery, and by making the allocation of capital more efficient. These arguments certainly apply to credit default swaps. This simple example illustrates two important advantages of clearinghouses. First, by allowing an institution with offsetting position values to net their exposures, clearinghouses reduce levels of risk and the demand for collateral, a precious resource, especially during a financial crisis. Second, by standing between counterparties and requiring each of them to post appropriate collateral, a well capitalized clearinghouse prevents counterparty

defaults from propagating into the financial system. Because of these advantages, the U.S. Treasury Department has announced that in the future all credit default swaps that are sufficiently standard must be cleared.

Clearinghouses, however, are not panaceas. In the fight for market share, they may compete by lowering their operating standards, demanding less collateral from their customers, and requiring less capital from their members. To ensure that clearinghouses reduce rather than magnify systemic risk, regulatory approval requires strong operational controls, appropriate collateral requirements, and sufficient capital. Clearinghouses should be subject to ongoing regulatory oversight that is appropriate for highly systemic institutions.

Most of the systemic advantages of a clearinghouse require standardized contracts. The CDS losses AIG suffered in the current crisis again illustrate the point. Most of their credit default swaps were customized to specific packages of mortgages and would not have met any reasonable test of standardization. As a result, they would not have satisfied the requirements for clearing under any of the current clearinghouse proposals. AIG's failure was driven by its concentrated position in credit default swaps and by the fact that its huge bets were not recognized or acted upon by either its regulators or its counterparties. Only better risk management by AIG, better supervisory oversight by its regulators, or clearer disclosure of its positions to counterparties would have prevented the AIG catastrophe, even if clearinghouses for credit derivatives had been in place years ago.

One should not conclude that a ban on non-standardized contracts is appropriate. An important function of financial institutions and insurance companies is precisely to meet the needs of individual businesses and owners of specific idiosyncratic securities for non-standardized contracts. However, those institutions and their regulators must regularly evaluate and hedge the systematic risks of their retail businesses, and not doing so was the central failure that led to the AIG fiasco. Standardized and especially indexed contracts are useful for institutions to hedge the exposures they generate from writing specific contracts for their customers, not a substitute for that activity.

Because well-functioning clearinghouses can reduce systemic risk, financial institutions should be encouraged to use them to clear credit default swaps and other derivatives contracts. Banks and other regulated financial institutions should have higher capital requirements for contracts that are not cleared through a recognized clearinghouse.

Financial institutions should not be required to clear all their CDS trades. Such a requirement would stifle innovation and possibly destroy the market for all but the most popular CDS contracts. Appropriate differences between capital requirements for contracts that are cleared and contracts that are not cleared will create the right incentives for firms to internalize the costs created by nonstandard contracts.

10. Literature Review

The literature on credit derivatives can be separated into three groups, namely academic research, publications by market participants, and studies carried out at central banks. Academic research is at a very nascent stage and concentrates on pricing issues as if they are traded in standardized market. Credit derivatives play an increasingly important and controversial role in financial markets. Commentators have lauded them for enabling banks to hedge credit risks while others have warned of hidden dangers and systemic risks. Institutions have both saved and lost fortunes using credit derivatives. The market for credit derivatives is now one of the largest markets in the world. David Mengle (2007) points out that a major source of credit derivatives growth since 2004 has been index CDS, in which the reference entity is an index of as many as 125 corporate entities. An index CDS offers protection on all entities in the index, and each entity has an equal share of the notional amount.

Martin Scheicher (2005) has found that banks, investment funds, hedge funds, insurance companies and corporations are the main players in the credit derivative market. The major incentives for trading credit derivates are mainly economic and partially regulatory.

Research examining earlier credit market innovations such as loan sales and securitizations has generally found that banks have used opportunities to diversify credit risk exposures to increase lending (Cebenoyan and Strahan 2004, Franke and Krahnen 2005, Goderis et al. 2006). Nicolo and Pellizon (2005) have investigated the problem faced by banks that may not have enough capital to satisfy capital requirement for issuing new loans when outside investors do not know the true type of the protection buyer and therefore faces an adverse selection problem. They argue that credit derivative contracts can be designed in order to solve the adverse selection problem; for it to happen banks should use first-to-default basket contracts in which the underlying assets have different maturities.

De Marzo and Duffe (1999) have shown that pooling and shearing may be optimal when the protection buyer has superior information. If credit derivative trades are opaque, so that protection buyer cannot make an ex-ante commitment to a specific protection level, banks have a moral hazard incentive to hedge their exposure fully and therefore cease to monitor Morrison (2005).

Hull and White (2000) analysed the effects of the assumed recovery rate on the CDS prices and found that, if the same recovery rate is used for estimating default probabilities and for pricing CDS using probabilities, the chosen recovery rate has little impact on the implied CDS premium as long as the recovery rate is assumed to be lower than 50 percent of the bond's face value.

Rajan (2005) has suggested that the hedging opportunities afforded by credit derivatives and other risk management techniques are transforming the banking industry. Banks have begun shedding ordinary risks such as interest rate risk in order to focus on more complex, borrower specific risk that they have a particular advantage in assessing and monitoring. This, too, could bring important benefits, such as more focused monitoring of corporate borrowers.

Bernadette A. Minton, René Stulz, and Rohan Williamson (2006) studied the likelihood of hedging with credit derivatives being related to the type of loans a bank makes. They found that banks are more likely to be net buyers of credit protection if they have more C&I loans in their portfolio and they originate foreign-denominated loans. However, while statistically significant, the point estimates on the C&I loan variable imply small economic increases in the likelihood of hedging with credit derivatives. Since the prices on CDS represent the costs of hedging, they should have a bearing upon banks' pricing of loans. And even when banks are not able to hedge a loan, credit derivatives may still affect its price. Banks have started to calculate pseudo-prices for exposures on which credit derivatives are not traded. These prices now provide loan officers with an accurate benchmark for the pricing of loans (e.g. Kealhofer, 2002, and The Banker, 2003).

Hedging theories typically predict that firms with a greater probability of costly distress are more likely to hedge Stulz (2003). (Bernadette A. Minton, René Stulz, and Rohan Williamson, 2006) found that higher profitability is associated with a lower probability of financial distress, then the likelihood of a bank using credit derivatives to hedge will be lower for more profitable firm. The dynamic nature of the credit derivative market makes definitive conclusions on the implications of credit derivatives difficult.

Systemic risk can be reduced through diversification of portfolio but non- systemic risk is immune to portfolio diversification as it is a function of the market in a country. The relationship between systemic risk and derivatives is important as the presence of systemic risk often forces the central bank to intervene in order to enhance the liquidity in the financial markets, Hunter and Marshall (1999) and Hunter and Smith (2002).

J.P. Morgan, and The RiskMetrics Group, (1999 -2000). The J.P. Morgan Guide to Credit Derivatives. Highlighted CDS market milestones and stressed on the associated risk. The use of credit derivatives has grown exponentially since the beginning. Banks remain among the most active participants, but the end-user base is expanding rapidly to include a broad range of broker-dealers, institutional investors, money managers, hedge funds, insurers, and reinsures, as well as Corporates. Dodd, R. (2005).

Rumors and News: Credit Derivatives Trigger Near System Meltdown. Stated that ABN Amro and AXA investment managers chose to roll out a credit derivatives fund aimed at attracting retail investors. Jakola, M. (2006).

Credit Default Swap Index Options - Evaluating the viability of a new product for the CBOE. Stated that exchange-traded CDS options would increase the liquidity in the CDS option market and allow retail and smaller investors to trade credit risk much more easily than with current products, as individual CDS or the CDS indexes are cost- effective hedges for most of the players. Mengle, D. (2007). In his study on Credit Derivatives: An Overview. Addressing the need of retail investor's participation, growth and innovation of credit derivatives could occur along several dimensions: new market participants i.e. retail investors. Eriksson, P. (2007). In his work on Overcoming the Challenges in the Credit Derivatives Market. Argued that the user base that trades credit product is primarily limited to banks, insurance houses, buy-side institutions such as hedge funds and to some extent asset managers. In order to further increase its footprint the credit market may need to attract the broader mass of both corporate

and retail investors. Although some corporates participate in the credit market they are few compared to the larger players and hardly add to the overall diversification.

Mark Carey, M. & Stulz, R.M. (2007). The Risks of Financial Institutions. Emphasize on the consensus view of systemic risk in the financial system that emerged in response to the banking crises. This view held that the main systemic problem is runs on solvent banks leading to bank panics. A new consensus has yet to emerge. The dramatic rise of modern risk management has changed how the risks of financial institutions are measured and how these institutions are managed.

Global Credit Derivatives Markets Overview: Evolution, Standardization and Clearing. (2010). Examined broader availability of credit protection encourages lending, which supports the expansion of global economies. As lenders and investors consider ways to improve credit risk evaluations, CDS spreads have proven to be a more dynamic indicator of the creditworthiness of an institution rather than credit ratings agencies' ratings alone.

Duffie, D. Li, A & Lubke, T. (2010). Policy Perspectives on OTC Derivatives Market Infrastructure. Reviewed and analyzed over-the-counter (OTC) market that OTC derivatives have been blamed for increasing systemic risk. Although OTC derivatives were not a central cause of the crisis, the complexity and limited transparency of the market reinforced the potential for excessive risk-taking, as regulators did not have a clear view into how OTC derivatives were being used.

Stulz, R M. (2010). Credit Default Swaps and the Credit Crisis. Investigated how credit default swaps may have contributed to the 2008 credit crisis by reviewing CDS market and models and concluded that, economists have generally believed that financial derivatives increase economic welfare by facilitating risk-sharing among investors, These arguments certainly apply to credit default swaps.

Bülbül, D. & Lambert, C. (2012). Credit portfolio modeling and its effect on capital requirements. Presented in the Basel III and Beyond: Regulating and Supervising Banks in the Post-Crisis Era conference and highlighted that the subprime crisis revealed that the adoption of suitable systems for the management of credit risk is of utmost concern.

International Organization of Securities Commissions report, (2012). Highlighted the significance of retail investors in the equity and exchange traded derivatives market strength in terms of liquidity and alternatives to diversify the various risk aspects among investors to create win-win platform and finally referencing CDS market that even CDS market have potentiality to attract retail investors to grow itself by creating higher confidence levels to convert existing CDS market more efficient equal to the other markets perhaps equity and exchange traded derivatives.

11. Objectives of the study

Credit derivatives are one of the major financial innovations of the last decade. The market for credit derivatives has become the third-largest derivatives market –after interest rate and foreign exchange derivatives– in terms of gross market value. Among credit derivatives, the credit default swap (CDS) is the most popular instrument for trading credit risk. However, despite their great success in the past, CDSs went to rack and ruin in public and have been blamed by its critics for being a major driver of the current financial crisis. For instance, in 2008 a Reuter's report about CDSs, headlined "Buffett's time bomb goes off on Wall Street", blames CDSs for the failures of Lehman Brothers, Bear Stearns and AIG. Since then, CDSs are being perceived as a double-edged sword and are the subject of a lively discussion in the academic community as well as in the media. In addition, as a result of the role played by over-the-counter (OTC) derivative markets during the current financial crisis, which made the financial system prone to contagion and increased systemic risk, new regulatory frameworks are under way to be implemented at the European level such as the European Market Infrastructure Regulation (EMIR) and Basel III. These regulations will have a significant impact on the CDS market and its participants. In particular, a major consequence of the new regulations will be an increase of the importance of central counterparties (CCPs) in the CDS market.

All these controversial debates and ongoing as well as far-reaching changes make the CDS market an interesting and active field of research. The main purpose of this dissertation is, therefore, to understand CDS, investigate its implications on a developing country like India as well as the impact of a new regulatory frameworks like Big Bang Protocol, Small Bang Protocol, etc. on the CDS market and its participants.

With a new model suggested based on the CDS structure, small investors could also benefit by safeguarding their investments. This model would also act as a source of more business for financial industry.

With the new model named Structured Micro Swaps the market participants can trade risk in respect of a reference identity through innovative means of financial health of the reference entity. There is ample amount of research available for reference entities as they are already traded publicly. It permits an investor to have a position where the long term view of the investment can be taken in to consideration. This model if implemented would not only find more and more investors interested, financial institutions would also be eager to offer such products to large number of investors. This model limits the risk transfer, keeps the structure simple which would prevent irregularities and strengthen the financial system.

12. Existing rules for CDS

A CDS contract involves the transfer of the credit risk of an underlying agreement like municipal bonds, emerging market bonds, mortgage-backed securities, or corporate debt between two parties. It provides the buyer of the contract, who may own the underlying credit, with protection against default, a credit rating downgrade, or another negative credit event. In the event of default the buyer of the CDS receives compensation, usually the face value of the loan, and the seller of the CDS takes possession of the defaulted loan. A default is often referred to as a "credit event" and includes such events as failure to pay, restructuring and bankruptcy, or even a drop in the borrower's credit rating. The exact nature of credit event varies from contract to contract and is decided in the specific agreement between two parties.

The seller of the contract assumes the credit risk that the buyer does not wish to shoulder in exchange for a periodic protection fee similar to an insurance premium, and is obligated to pay only if a stated credit event occurs. It is important to note that the CDS contract is not actually tied to a bond, but instead references it. For this reason, the bond involved in the transaction is called the "reference obligation." A contract can reference a single credit, or multiple credits. If there is no credit event or no default, the seller of protection receives the periodic fee from the buyer, and profits if the reference entity's debt remains good through the life of the contract and no payoff takes place.

If there is a credit event, the party that sold the credit protection, and who has assumed the credit risk, must deliver the value of principal and interest payments that the reference bond would have paid to the protection buyer. With . Settlement If a default or credit event occurs then CDS contracts can either be cash settled or physically settled: • Cash settled - In a cash settlement, the protection buyer receives par minus the default price from the protection seller. The default price is normally determined by a dealer poll conducted 14-30 days after default (the delay allows the recovery value of the reference obligation to stabilize). If the reference obligation cannot be priced, then the swap documentation should allow the price of a reference obligation of similar maturity and credit quality to be used as a substitute. Premium payers who do not hold the underlying asset (and are thus using the CDS to gain synthetic exposure to the reference obligation) may prefer cash settlement, as it avoids the need to buy the reference obligation and physically deliver it.

• Physical settled - In a physical settlement, the underlying asset (reference obligation) is delivered to the protection seller, who then pays the protection buyer the par value of the asset. If the protection seller feels that it can receive more than the default price in the workout process, then the seller will opt for physical settlement.

12.1 ISDA documentation

From legal standpoint, CDS are governed by international swaps and derivatives association (ISDA) master agreement framework.

ISDA credit derivatives definitions: The definition of credit events and other contractual details have been set down in the ISDA Credit Derivative Definitions (1999, updated 2003). The following credit events have been defined: the reference bonds still having some depressed residual value, the protection buyer must, in turn, deliver either the current cash value of the referenced bonds or the actual bonds to the protection seller, depending on the terms agreed upon at the onset of the contract. If there are more CDS contracts outstanding than bonds in existence, a protocol exists to hold a credit event auction; the payment received in such cases is usually substantially less than the face value of the loan.

12.2 Settlement

If a default or credit event occurs then CDS contracts can either be cash settled or physically settled:

• Cash settled - In a cash settlement, the protection buyer receives par minus the default price from the protection seller. The default price is normally determined by a dealer poll conducted 14-30 days after default (the delay allows the recovery value of the reference obligation to stabilize). If the reference obligation cannot be priced, then the swap documentation should allow the price of a reference obligation of similar maturity and credit quality to be used as a substitute. Premium payers who do not hold the underlying asset (and are thus using the CDS to gain synthetic exposure to the reference obligation) may prefer cash settlement, as it avoids the need to buy the reference obligation and physically deliver it.

• Physical settled - In a physical settlement, the underlying asset (reference obligation) is delivered to the protection seller, who then pays the protection buyer the par value of the asset. If the protection seller feels that it can receive more than the default price in the workout process, then the seller will opt for physical settlement.

12.3 Basel II Treatment of Credit Default Swaps

The Basel II framework uses a substitution approach in recognising the risk- mitigating effect of credit default swaps on regulatory capital. In this approach, the risk of the protection seller substitutes the risk weight of the reference obligation. The Following are some of the conditions that must be met for regulatory recognition of a CDS under Basel II:

- The CDS must a direct claim on the seller: This claim must be unconditional and irrevocable. There must be no clause in the CDS contract outside the control of the protection buyer that could prevent the protection seller from being obliged to pay out promptly when a credit event occurs.
- The seller must meet certain eligibility criteria: Eligible protection sellers include public sector entities, sovereigns, banks, and securities firms that have a lower risk weight than the buyer. Other entities that are rated A- or better are also eligible protection sellers.
- Certain credit events have to be specified in the CDS: Credit events specified in the CDS must include failure to pay, bankruptcy, insolvency, and restructuring. If restructuring is not included as a credit event, the amount of hedge is limited to 60%. The rest of the underlying exposure (40%) will be treated as un-hedged for regulatory capital purposes.
- Only assets from the same obligor can be mismatched: An asset mismatch is valuation permitted only if the asset is from the same obligor.
- There must be robust for cash settlement: If the CDS is cash settled, a robust valuation process must be in place in order to estimate the loss reliably.
- Determination of credit event must be objective: Determination that a credit event has taken place must be definitive and objective. The protection seller should not have the right to notify a credit event.

11.4 Recent Changes in CDS Markets

In the years leading up to the global financial crisis, the global CDS market grew significantly reaching a peak (in terms of notional amounts outstanding) of over USD 62 trillion in 2007. However, the financial crisis revealed several shortcomings of the CDS market, in particular, the lack of transparency regarding open CDS positions, insufficient management of counterparty credit risk, and settlement backlogs. To end this, substantial change in the credit derivative market was made in 2009 with the implementation of CDS big bang and small bang protocols, as well as the introduction of new CDS trading conventions. The goal of these changes is to enhance the infrastructure of the CDS market in order to achieve same day trade matching, the elimination of offsetting trades, and centralized clearing.

11.5 Big Bang protocol

The Protocol was adhered to by over 2,000 market participants and took effect on April 8, 2009 for new trades and June 20, 2009 for legacy trades for investors that participate in the Big Bang Protocol. The establishment of Credit Derivatives Determinations Committees ("DCs") for each of the five ISDA regions: the Americas, Asia excluding Japan, Japan, Australia-New Zealand and EMEA. The voting section of each DC will be comprised of eight global and two regional dealers and of five non-dealer ISDA members. DCs will resolve:

- Whether and when a Credit Event has occurred
- Whether or not to hold an auction to settle credit derivatives transactions for which it was resolved that a Credit Event had occurred
- The list of Deliverable Obligations of the relevant Reference Entity
- Whether and when a Succession Event has occurred, and the identity of the Successor(s) or Substitute Reference Obligations
- Matters of contractual interpretation relevant to the credit derivatives markets in general.

Resolutions of the DCs generally require a supermajority of 80% of a quorum of DC members (resolutions regarding determinations of the sort described in clause (2) above require a majority of 50%). If a supermajority cannot be obtained as required, the relevant question before the DC will be referred to an external review panel for a final decision.

The incorporation of auction settlement provisions as the standard settlement method for credit derivatives transactions: The DCs will decide whether to hold auctions in respect of each Credit Event and if so, will determine the necessary auction-specific terms applicable to the standard auction settlement terms. No auctions will be held for Restructuring Credit Events, and DCs may decide not to hold an auction for illiquid Reference Entities. If no auction is held, or parties have not selected 'Auction Settlement' in their confirmations or have not adhered to the Big Bang Protocol, relevant transactions will be settled in accordance with the applicable fallback settlement method specified in the confirmations.

The introduction of Credit Event and Succession Event Backstop Dates: a credit derivative transaction can only be triggered by a Credit Event and/or affected by a Succession Event that occurs during the 60-day or 90-day period, respectively, before the earlier of (1) the date on which a request to the DC regarding such event is submitted (assuming the DC decides to resolve the question) and (2) the date on which a Credit Event Notice and Notice of Publicly Available Information (if required) or Succession Event Notice, as applicable, are effectively delivered to the other party. To be clear, the rolling look-back period also extends to the 60/90-day period prior to the Trade Date.

11.6 Small Bang Protocol

The protocol created a new system for settling payment under CDS contracts when a distressed company is forced to restructure its debt.

- Restructuring event: A determination committee will rule whether a restructuring credit event has occurred.
- Maturity Buckets: CDS contracts may be grouped into eight possible buckets depending on maturity (2.5, 5, 7.5, 10, 12.5, 15, 20 and 30 years). An additional bucket may also be created to settle contracts that terminate before 2.5 years.
- Deliverable obligations: The relevant DC will decide which bonds or loans are deliverable into which maturity buckets.
- Triggering of CDS contracts: Protection buyers and sellers have 5 business days to decide whether to trigger their CDS contracts.
- If CDS is triggered by protection buyer, it will go to one of the buckets in accordance with its specified maturity.

- If a CDS is triggered by the protection seller, it will go into the 30-year bucket.
- If CDS contracts are not triggered for a given auction then it will continue as before until another credit event occurs or the contract terminate.
- Compulsory cash auction: for each maturity bucket, if 500 CDS contracts are triggered and five or more dealers are parties to these contracts, a cash auction will be compulsory.
- Mod R and Old R: The small bang auction procedure applies to CDS contracts that include the modified restructuring credit event, while big bang auction procedure applies to CDS contracts that include the old restructuring credit event.

11.7 Transactions Excluded from the Big Bang Protocol and Small Bang Protocol

The following CDS transactions are excluded from the scope of the Big Bang Protocol and the Small Bang Protocol and will not be amended to incorporate in it unless the parties bilaterally agree:

- Loan-only transactions
- US municipal type transactions
- Credit derivative transactions on asset-backed securities
- Certain derivative index transactions

13. Indian Regulatory Scenario

Originally, RBI intended to introduce this new financial product in 2003 and 2007, but could not introduce it at that time. Subsequently, RBI had set up a working group for introduction of CDS in 2010. Based on the recommendations of the working group and the feedback received on draft guidelines, Reserve Bank of India issued the final guidelines on 23 May 2011 for effective implementation of CDS from 24 October 2011.

With the introduction of the final guidelines, RBI wants to further deepen and widen the corporate bond market in India. It is expected that banks and other financial institutions in India will be able to transfer and manage the credit risk in a better manner with the help of CDS. Credit default swaps earned bad name during the global financial crisis of 2007/2008 as the US and European banks took higher risks and suffered heavy losses on account of their huge exposure in the CDS market. Despite the global financial crisis of 2007/2008 and the latest sovereign debt crisis that is sweeping the world right now, Reserve Bank of India has been bold enough to introduce new financial products in India as part of financial sector liberalization in India. In the last three years, RBI has introduced a slew of products ranging from currency futures, currency options to interest rate futures and now CDS market is at our doorstep.

Banks and other financial institutions in India are big lenders to companies, firms and others. As such, the credit risk for banks goes up if the borrowers do not repay their debts in time or there is a risk of default. Now, the introduction of CDS will provide an additional avenue for lenders to manage their credit risk and help free up capital. Banks and financial institutions are bound by RBI's prudential norms on lending to large companies and large group of companies. Several times, banks exceed the RBI's lending ceilings to large companies. In such cases, banks can use CDS to bring down their credit exposure to such companies. Mutual funds and insurance companies may also participate in CDS market as a means to diversify their portfolio and broaden their asset base.

Basically, there are two types of participants in the CDS market. They are market makers and users:

1. Market makers: These are entities permitted to quote both buy and/or sell CDS spreads. They would be permitted to buy credit protection without having the underlying bond.

2. Users: These are entities permitted to buy credit protection (buy C contracts) only to hedge their underlying credit risk on corporate bonds.

As of now, RBI has permitted the following participants in the CDS market:

- Market makers- Users
- Commercial banks
- Stand-alone primary dealers - Primary dealers
- Non-Banking Financial Companies (NBFCs)
- Mutual Funds
- Insurance companies
- Housing Finance companies
- Provident funds
- Listed corporates
- Foreign Institutional Investors

The final guidelines issued by RBI are for Plain Vanilla Over-The-Counter Single-name CDS for corporate bonds in India. All CDS trades shall have an RBI regulated entity at least on one side of the transaction

Reference entities: CDS will be allowed only on listed corporate bonds as reference obligations. The reference entities shall be single legal resident entities.

The users (except FIIs) and market makers shall be resident entities

The reference asset/obligation and the deliverable asset/obligation shall be to a resident and denominated in Indian Rupees.

The CDS contract shall be denominated and settled in Indian Rupee.

The CDS contract shall be irrevocable.

CDS shall not be written on securities with original maturity of up to one year, for example, Commercial Papers (CPs), Certificate of Deposits (CDs) and Non- Convertible Debentures (NCDs) with original maturity up to one year.

Standardised CDS contracts: The CDS contracts shall be standardised.

Settlement Methods: For transactions involving users, physical settlement is mandatory. For other transactions, market makers can opt for any of the three settlement methods (physical, cash or auction settlement), provided the CDS documentation envisages such settlement.

Eligible credit events: Bankruptcy, Failure to pay, Repudiation/moratorium, Obligation acceleration, Obligation default, Restructuring approved under Board for Industrial and Financial Reconstruction (BIFR) and Corporate Debt Restructuring (CDR) mechanism and corporate bond restructuring are the eligible credit events for CDS.

CDS are an off-balance sheet exposure to both credit and market risk. The sale of CDS amounts to assuming credit risk. A CDS contract creates two types of exposures for the parties concerned, namely, counterparty credit exposure and market risk exposure.

RBI's approach to the introduction of CDS is very cautious due to the role played by CDS in the collapse of Lehman Brothers in 2008 and the subsequent global financial crisis. RBI's final guidelines are extremely elaborate and they are allowing only plain vanilla single-name CDS and that too for only corporate bonds that are listed on exchanges.

14. Scope in India

The Government of India, in its Twelfth Five Year Plan (2012-17), sought to invest Rs. 6,579,463 crores into developing infrastructure projects. Today, the funds available for ambitious, yet much required infrastructure projects, fall short of this figure despite impressive gross domestic savings of 33.7%. This is primarily due to the lack of long-term debt. The largest source of funding is commercial banks that prefer lending medium-term because of their asset-liability mismatches.

Ideally, the invisible hand should have led to a reallocation of the sizable savings to investment in infrastructure projects through corporate bonds, thereby satisfying the demand for funds, and awarding investors with a higher rate of return than bank deposits. However, several factors such as regulated interest rates, high stamp duties, government ownership of banks, and government intervention in capital markets have stunted growth of the corporate bond market in India.

The long and expensive issuance process for corporate bonds has been a major disincentive from the corporate perspective.

Further, a bond-related derivate market, vital to manage risk exposure, does not exist. From the perspective of retail investors, fairly high rates offered on risk-free, small savings schemes have acted as a disincentive to investment in relatively risky corporate bonds, thereby leading to illiquidity of corporate bonds in the secondary market.

The High Level Expert Committee on Corporate Bonds and Securitisation made recommendations to remedy this situation including the introduction of derivatives to manage risk exposure. It is in this context that CDS have been introduced in India.

The objective behind the introduction of CDS on corporate bonds was to provide market participants a tool to transfer and manage credit risk in an effective manner through redistribution of risk.

By acting as a risk management device, CDS encourages participants to take risks they otherwise may have been hesitant to take. By introducing CDS for corporate bonds, some investor concerns regarding risk associated with investment in corporate bonds may be alleviated and consequently, it is hoped, will result in enhanced investment in corporate bonds.

CDS were introduced in the Indian market on 1st December, 2011.

While regulators had been toying with the idea of introducing CDS since 200797, their entry was delayed by the cautionary bells sounded by the criticisms of this product in the aftermath of the 2008 financial crisis. It was maintained, however, that Plain Vanilla 'CDS were in themselves a useful hedging tool, and would not create havoc in the market unless left unregulated.

The RBI formed an internal Working Group to formulate the operational framework for introduction of CDS for corporate bonds in India. The Group submitted its final report in February, 2011. Subsequently, the RBI prepared draft guidelines for CDS in India based on recommendations of the Working Group and placed it on the RBI website for public comments. The guidelines were finalised on 24th May, 2011, after taking into account suggestions received from the various stakeholders.

The guidelines were supposed to be effective from 24th October, 2011, however, its implementation was postponed to ensure that adequate infrastructure was in place prior to the introduction of CDS.

The reporting infrastructure being put into place, the Guidelines were finally made effective on 1st December 2011. The financial crisis revealed deficiencies in the derivatives markets globally, including inadequate management of counterparty risk, lack of transparency regarding transactions, and complexity of instruments, making it difficult to determine actual risk exposures.

The RBI took all of these into account and made attempts to address each of these concerns before making the Guidelines effective. To deal with counterparty risk, the Guidelines provide for collateralisation and margining requirements to avoid problems arising from lack of transparency, RBI

held back introduction of the Guidelines until the reporting platform was in place, and the introduction of plain vanilla single-name CDS only ensures clarity as to the amount of risk exposure.

The efforts of the RBI in coming out with these Guidelines are indeed commendable. There is no doubt that there is a pressing need for risk management mechanisms if liquidity in India's nascent corporate bond market is to be enhanced, and liquidity in the corporate bond market is crucial to fund the shortfall in infrastructure financing.

However, the Guidelines must be examined to study whether in trying to solve one problem, they are creating another. A perusal of the Guidelines makes it evident that the RBI has taken several precautionary measures to deal with risks from CDS, including capital adequacy requirements, exposure norms, risk management practices, and so on.

Most importantly, RBI has curtailed speculation by banning users from buying CDS unless they have exposure to the underlying risk.

Moreover, users cannot buy CDS for amounts higher than the face value of corporate bonds held by them, nor can they hold CDS for a period longer than the tenor of underlying bonds.109This goes a long way in curbing speculation through naked CDS which is what shook the foundations of AIG. However, what is peculiar in an otherwise extremely cautious set of guidelines is that market-makers are permitted to both buy and sell CDS without an underlying bond, thereby still leaving scope for speculation. This provision must be rectified if the sanctity of CDS as a hedging tool is to be maintained.

While the Guidelines do not mandate a system of centralised clearing, requisites such as reporting on the trade reporting platform and standardisation indicate the possible introduction of such a system once there is sufficient volume. Such an inclination is clear from the Draft Report of the Internal Group on Introduction of Credit Default Swaps for Corporate Bonds (henceforward, the Draft Report).

Draft Report acknowledges the adoption of CCPs as a risk management mechanism globally. The reason for non-introduction of CCPs at present in India seems to be the lack of liquidity and volumes in single-name CDS at the moment.

The first CDS deal in India was between ICICI and IDBI, made on 7th December, 2011, and was worth $1.9 million. There have only been a couple of other CDS transactions and therefore the reporting values everyday has been zero.

In light of the heightened systemic risk posed by CCPs, as previously discussed, RBI should reconsider the potential introduction of CCPs for CDS. The risks with introduction of CCPs have also been acknowledged in the Draft Report. Specifically, provision of liquidity to CCPs by the central bank or from the public sector in the event of failure of one or more members of the CCP has been identified as a point of debate. Additionally, the Draft Report acknowledges the problem of determining margin requirements that will provide sufficient liquidity, in case of a jump-to-default scenario.

Lastly, the Draft Report also addresses the issue of adequate capitalisation. It states that while CCPs facilitate multilateral netting and thereby, reduces counterparty risk, this requires adequate capitalisation of CCPs through margins sufficient to absorb potential losses. It must also be noted, that the Guidelines permit the introduction only of single-name CDS i.e., CDS that offers protection for a single corporate or sovereign reference entity.

It is widely recognised that single-name CDS are not suitable to centralised clearing. This is because the CDS would contain provisions unique to the specific transaction it is hedging and will therefore not be capable of being standardised in a way CCP clearing requires. The counterparty risk associated with a single-name CDS being higher than in case of index CDS, higher margin, collateral, and default fund contributions could be called for. This could make clearing uneconomical for a user of a CCP for single-name CDS.

15. Benefits of CDS for India

After the economic crisis, India has been on the path to recovery and managed to achieve 7.4 per cent growth in GDP in 2009-10, one of the highest in the world. It is important to ensure availability of the necessary financial resources in order to sustain these high growth levels. Traditionally it has been the banks that have provided the necessary credit support. This is evident from the fact that the gross outstanding loans from banks were `33.7 trillion as at November, 2010 which is high in comparison to the size of the corporate bond market in India. Such high dependency on the banking sector for credit is a cause of concern. However corporate bodies have found it difficult to raise capital through the bond markets and they have limited options. Only a few 'AAA' rated companies and government supported entities have been successful in mobilising funds through the capital debt market. One of the reasons has been weak investor confidence on relatively low rated bonds and the illiquidity of the bond market. Further, in the absence of interest from other market participants, one of the major investors in the bond market is banks. This has led to increased credit risk concentration within the banking sector and poses a serious systemic risk for the economy. There is a need to provide a market that enables lower rated companies to raise the capital required for the future growth. Further, there is need to provide an efficient mechanism by which credit risk can be managed and distributed among a larger number of stakeholders. A successful CDS market has the potential to satisfy these needs of the market and the economy.

15.1 Benefits for Market Makers

Banks

There are multi-fold incentives for the banks to participate in the CDS market both as market makers and users. Here we list the benefits for them in becoming market makers. There are a large number of regional banks in India who have their exposure concentrated only in particular states. These banks are currently not able to lend to companies in other regions in India by not being present in those markets. Such banks can diversify their exposure by selling CDS on the companies in that region. Similar opportunities exist for diversification to different industries. Such diversification would help regional banks to have a better credit portfolio. Banks can take more exposure with lower capital by entering into such derivative transactions. In absence of CDS, banks are required to lend the full amount to gain that exposure, whereas CDS could lead to the payment of the full exposure amount only in case of default. This would enable the banks to effectively deploy capital. Banks have the expertise in understanding the credit cycle and can take views on certain industries/issuers and then actively trade on their spreads, thereby adding one more avenue to earn profits.

Insurers

Currently, insurers take views on the bonds of issuers while investing. They can extend their views and take credit exposure by selling CDS on bonds rather than investing in bonds directly. The derivative nature of CDS can enable them to earn better spreads at lower cost than in investing in bonds.

Mutual Funds

Mutual funds invest in the bond and the equity markets based on investment objectives. They typically aim to provide better returns through active management of funds. Market making in the CDS market provides them with one more avenue to earn at lower costs. They can: take advantage of the arbitrage opportunities between the bond market and the CDS market; take views on the entity across three markets: CDS, bonds and equity; and take advantage of their trading skills.

15.2 Benefits for Users

Corporate

CDS in the proposed form provides a credit risk transfer mechanism only for corporate bonds. This can provide one more avenue to raise capital for lower-rated companies other than bank loans. If any better rated market maker is willing to provide protection on the bonds of such companies, it provides the investor with extra comfort and can generate their interest in such bonds. This can serve a dual purpose: firstly the companies now have an alternate route to mobilise funds and secondly it can generate much required interest from investors in the corporate bond market. The introduction of CDS can lead to more transparency in the determination of the credit risk of the entity by efficient market mechanisms. This could mean that companies would no longer have to rely on the credit assessment of banks alone to determine their cost of debt; rather, market forces would determine it. More information and better transparency can decrease the cost of debt for well governed, healthy companies.

Banks

As users, the banks can buy CDS to hedge their investments in bonds. Further, banks can also hedge their exposure on loans given to corporates which have also issued bonds, by buying CDS for those bonds. Similarly banks can also hedge by finding similar proxies for their loans in the bond market and buying CDS for them. Thus the CDS market can effectively provide a mechanism for banks to diversify their risks and thus decrease systemic risk. Currently the capital requirement for banks selling and buying CDS has not been disclosed. But it is expected that buying CDS for the purpose of hedging investments in bonds would lead to lower capital requirement for banks, and this in turn can help banks to free up their capital. Whether there would be a similar advantage in capital requirements by selling CDS against lending loans is still not clear. The success of CDS on bonds would definitely provide an incentive for the regulators to allow CDS on loans which would be of utmost importance for the banks.

Insurers

Insurers have an important responsibility to meet policyholder obligations. Presently their participation in the debt market is restricted to G-Sec (Government Securities) and high rated bonds, partly due to regulation and partly because there is no mechanism available to them to hedge their risk on the credit exposure to the issuers. Introduction of CDS would enable them to hedge the risk and provide more comfort to the insurers. Further, they would be more comfortable to take exposure in lower rated bonds which can provide better returns and hedge the exposure by buying CDS cover from the high rated market maker.

Mutual Funds

Mutual funds can hedge their risks on bonds exposure by buying CDS. Capital protection funds and debt funds would certainly find CDS a useful tool for the purpose of hedging.

Bond Market

As mentioned before, the introduction of CDS would help to develop the market for low- rated bonds and would also provide better credit risk transparency. A liquid CDS market and an illiquid bond market would increase arbitrage opportunities, which cannot co-exist for long in an efficient market, thereby leading to much needed liquidity in the bond market. |This may in turn fuel the growth of the bond market.

16. Indian regulatory approach in comparison with US and EU

In India, the Guidelines being formulated by the regulator itself, as against a legislative body in the US and EU, are more detailed in respect to what is expected of market participants. However, they still do leave considerable discretion to the market participants (as against the regulators in the US and EU) in deciding how they will meet their obligations under the Guidelines. For instance, in relation to managing risk from counterparty credit exposures, the Guidelines provide that the protection sellers shall have in place internal limits (based on capital funds) on the gross amount of protection sold by them on a single entity, as well as the aggregate of such individual gross positions.

At this stage, CCPs have not yet been introduced in India. It is, therefore, not possible to compare legislation on this front. The non-introduction of CCPs is due to the fact that the nascent CDS market in India does not yet have sufficient volumes to support the functioning of a CCP. The introduction of a CCP has, however, been discussed, and given the aforementioned commitment of the G20 (of which India is a part) it is likely that India will have to follow suit and introduce CCPs in the near future.

17. CDS and the Risk Of Collapse

CDS risks of collapse of an entire financial system or entire market (Systemic Risk)

Systemic risk refers to the risks imposed by inter linkages and interdependencies in a system or market, where the failure of a single entity or cluster of entities can cause a cascading failure, which could potentially bankrupt or bring down the entire system or market. CDS can cause such risk because of the following reasons:

Trade processing remains a source of operational risk. Although about 90 percent of credit derivatives transactions are now being confirmed electronically, compared to about 75 percent in 2004, the other 10 percent, comprised mostly of customized (“bespoke”) contracts, is associated with significant volumes of unconfirmed and failed trades.

These are often processed with long delays, and in some cases are incomplete and inconsistent, making accurate counterparty risk management difficult. In addition, audit trail data are not readily available and must be reconstructed manually. However the “Big and Small” Bangs” has Reduced Operational Risk.

18. Research Methodology

The report is divided into several parts. The idea was to understand the Credit Default Swaps, study the evolution and analyse the role of CDS in the financial crisis. For this a detailed descriptive analysis was conducted, in which the guidelines by the international regulator of CDS, ISDA was analysed. The research of various academicians, industry insiders, industry participants, governments, national regulators, etc. was studied and analysed.

To understand the impacts and benefits of CDS to a growing like India, the study conducted by National Security Exchange, various academicians, Indian regulator FIMMDA were studied in detail and the conclusions were drawn.

After analysing the CDS and the need of the retail investors, a new model is proposed which incorporates the positives of CDS and includes additional features which would increase the safety and create more trades.

The various sections are:

•Existing structure of Credit Default Swap : It involves descriptive analysis, based on secondary data research. It reviews the existing state of CDS market.

•Regulatory Frameworks and Standards : It involves descriptive analysis, based on secondary data research. It studies the existing standards, guidelines, etc. of CDS. New changes implemented to prevent the financial crisis in the future were also studied.

•Scope in Indian Market : The research is based on secondary research, which examines the present structure of CDS to retail customers. The benefits which a developing economy like India can have by wide spread use of CDS.

19. Structured Micro Swap – Proposed Model

A Structured Micro Swap (SMS) could be counter traded & over the counter traded. It would behave like a hybrid of a credit derivative and an equity derivative. It's structure is based on the Credit Default Structure.

Structured Micro Swap would be a vehicle for one party to provide another protection against some possible event relating to some reference asset. The reference asset could be some company's stock, insurance, mutual fund investment (with a guaranteed >= rate) and protection is provided against a dramatic decline in the price of that stock or failure to receive the promised return or investment returns.

For example, SMS might provide protection against a 70% decline in the stock price from its value when the SMS was initiated. The event being protected against would be called the trigger event or knock-in event.

There would be two parties to the agreement. Maturities would be for several years, upto a period of 10 years initially. The party buying protection would pay the other a fixed periodic payment for the life of the agreement. The other party would make no payments unless the trigger event occurs. If it does occur, the structured Micro Swap would terminate, and the protection seller would make a specified payment to the protection buyer.

For example, if a structured micro swap is triggered by a 70% decline in the stock price, it would provide protection to the investor against such a scenario if this condition was mentioned in the contract.

The protection buyer pays a periodic premium over the life of the contract and is, in turn, covered for the period.

If a certain pre-specified event occurs, the premium payment would stop. If no credit event occurs during the term of the swap, the protection buyer would continue to pay the premium until maturity. The insurance seller would be allowed to further sell the insurance portfolio to only one more insurer. This would prevent the formation of invisible trail.

The insurance buyer would not be allowed to further sell or speculate or involve this SMS contract in any other financial instrument or contract. This would restrict the risk of this particular instrument.

Credit events

An event is triggered if, during the term of protection, an event that materially affects the cash flows.A credit event can be a bankruptcy of the reference entity, or a default of a bond or other debt issued by the reference entity. In case of real estate or life / non-life insurance the failure in payment of pre agreed deliverables would amount to credit events.

Events such as principal/interest rate reduction/deferral and changes in priority ranking, currency, or composition of payment can qualify as credit events.When a credit event will trigger the SMS, the contract would be settled and terminated.

Reference entity

A SMS contract would specify the precise name of the legal entity on which it provides protection. Given the possibility of existence of several legal entities associated with a company, a default by one of them may not be tantamount to a default on the CDS. |It is important to know the exact name of the legal entity. If the legal entity does not survives, the SMS contract would follow the entity that succeeds.

20. Results & Conclusion

CDS have always elicited opposing opinions from market commentators. While some extolits virtues as the best way to guard against risk, the financial crisis showed that the interconnectedness of big financial institutions, enhanced by CDS, is a source of systemic risk. It is, therefore, odd that the Dodd-Frank Act and EMIR chose centralised clearing through CCPs, which are nothing but a formalised interconnection among big financial institutions, as a means to avoid systemic risk. Centralised clearing only wins the battle against counterparty risk, while losing the war against systemic risk. Moreover, concentration of risk in CCPs means that CCPs are unlikely to be allowed to fail, and the possibility of a bail-out means that CCPs might get lax in managing risks, consequently creating a moral hazard. Thus, relevance of CCPs as a mechanism to deal with systemic risk is questionable.

India has introduced CDS to enhance liquidity in the corporate bond market. The RBI‘s regulatory precautions are commendable for the most part. However, in light of the risks associated with centralised clearing as highlighted in this paper, the RBI would be wise to continue to be on guard with its precautionary measures in the Guidelines. The benefits of CDS in encouraging India‘s nascent corporate bond market are unquestionable. Furthermore, the fact that the EU and the US have continued to allow CDS despite the deep impact it has had on their financial markets, goes to show that the perceived benefits of CDS outweigh its disastrous effects.

However, in light of past experiences, the RBI must find a way to solve the problem that CCPs may pose with regard to systemic risk without introducing another one. The obvious solution to address the systemic risk that CCPs may pose is to allow resorting to the RBI as a lender of last resort. However, this may raise concerns about moral hazard and ‗too big to fail‘, as were raised in AIG. The RBI has two options going forward: (i) to not introduce CCPs and introduce safeguards to deal with counterparty risk at the level of the parties; or (ii) to introduce CCPs, but find a way to deal with the moral hazard posed by allowing the RBI to act as a lender of last resort to CCPs (which for now seems to be the only solution if a CCP were to end up in a position where it posed systemic risk), or find another way to make CCPs systemic risk–proof.

Credit derivative market will help to improve financial stability by facilitating the dispersion of credit risks. It allows dispersion of risk to a larger set of investors. As such it insulates the financial institutions and banks from credit shocks or at least help, to reduce the impact of the shock. Concerns have been raised that credit derivatives spreads the risk so wide that it may not always be possible to track them in the financial system. This might affect the ultimate stability, although most evidence as of now point’s against it. It is argued that the ownership reduces the quantum of risk for each participant and makes it easier to absorb unless otherwise the participants are over exposed to high-risk instruments. One major area of concern among regulators is the backlog of unconfirmed trades, resulting in part from under investments in the back office capacity by major dealers. In light of these ISDA has proposed streamlining of innovations (reassigning trades) protocol and the industry has agreed to cooperate. In India Reserve bank of India has proposed to make cash settlement in single name CDS. This should help improve the settlement process. The question of effectiveness of credit risk transfer still exists. ISDA has been tracking outstanding notional amounts of credit derivatives for several years. However notional amounts are not sufficient to measure the economic risk transferred. Regulators have to ensure that recipient of credit risk have the risk management system and skill needed to manage such exposures. In emerging markets like India the issue of institutional shortcomings like bankruptcy codes, creditor rights, clearing and settlement agencies can impede the growth of credit derivative market. The effect of risk transfer on the monetary policy transmission mechanism is significant as evidenced from research particularly in the US markets. It has been found that it reduces the impact of the monetary transmission effect as the importance of interest rates reduces and the availability of liquidity and credit volumes become determining factors. There is a great deal of uncertainty about how critical variables – including credit aggregates, consumption, fixed investment, and inflation – will behave under the new scenario. Hence further studies on this are vital for policy makers to establish action plan to deal with it.

Economists have generally believed that financial derivatives increase economic welfare by facilitating risk-sharing among investors, by improving price discovery, and by making the allocation of capital more

efficient. These arguments certainly apply to credit default swaps. There are legitimate reasons to be concerned about potential problems that can be created because of exposures to derivatives and because of the trading of derivatives. In the aftermath of the financial crisis, credit default swaps and other financial derivatives have clearly lost any presumption of innocence that they once enjoyed among economists—and they probably never had such a presumption with the general public.

As these events unfolded, financial derivatives like credit default swaps were associated with losses and uncertainty at some institutions, but also enabled other institutions to hedge and hence to reduce the impact of the fall in subprime mortgage and other securities. Rather than blaming derivatives markets such as the credit default swap market for being too large, it might make as much sense to regret that derivatives markets were not larger. For instance, it may well be that more robust derivatives markets in housing would have produced useful information for investors that would have changed the evolution of housing markets and averted or minimized the effects of a crash by enabling investors to hedge against drops in house prices.

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22. Annexure

Annexure

RBI Guidelines on Credit Default Swaps for Corporate Bonds in India

1. Objective

The objective of introducing Credit Default Swaps (CDS) on corporate bonds is to provide market participants a tool to transfer and manage credit risk in an effective manner through redistribution of risk. CDS as a risk management product offers the participants the opportunity to hive off credit risk and also to assume credit risk which otherwise may not be possible. Since CDS have benefits like enhancing investment and borrowing opportunities and reducing transaction costs while allowing risk-transfers, such products would increase investors' interest in corporate bonds and would be beneficial to the development of the corporate bond market in India.

2. CDS for Indian Markets – Product Design

2.1 **Eligible Participants –** Participants in the CDS market are classified as under:

- *Users*: Entities permitted to buy credit protection (buy CDS contracts) only to hedge their underlying credit risk on corporate bonds. Such entities are not permitted to hold credit protection without having eligible underlying as a hedged item. *Users* are also not permitted to sell protection and are not permitted to hold short positions in the CDS contracts. However, they are permitted to exit their bought CDS positions by unwinding them with the original counterparty or by assigning them in favour of buyer of the underlying bond.
- *Market-makers:* Entities permitted to quote both buy and/or sell CDS spreads. They would be permitted to buy protection without having the underlying bond.

2.1.1 The eligible entities under *market-makers* and *users* categories would be as under:

Market-makers[*]	Commercial Banks, stand alone Primary Dealers (PDs), Non-Banking Financial Companies (NBFCs) having sound financials and good track record in providing credit facilities and any other institution specifically permitted by the Reserve Bank.
Users	Commercial Banks, PDs, NBFCs, Mutual Funds, Insurance Companies, Housing Finance Companies, Provident Funds, Listed Corporates, Foreign Institutional Investors (FIIs) and any other institution specifically permitted by the Reserve Bank.

2.1.2 All CDS trades shall have an RBI regulated entity at least on one side of the transaction.

2.2 **Eligibility norms for *market-makers***

2.2.1 Commercial banks who intend to act as *market-makers* shall fulfill the following criteria:

a) Minimum CRAR of 11 per cent with core CRAR (Tier I) of at least 7 per cent;
b) Net NPAs of less than 3 per cent.

Banks should submit their Board approved policy and the date of commencement of CDS trading as *market-makers* to the Chief General Manager-in-Charge, Department of Banking Operations and Development, Central Office, RBI, Mumbai.

2.2.2 NBFCs having sound financial strength, good track record and involved in providing credit facilities may be allowed to act as *market-makers*, subject to complying with the following criteria:

a) Minimum Net Owned Funds of Rs. 500 crore;
b) Minimum CRAR of 15 per cent;
c) Net NPAs of less than 3 per cent; and
d) Have robust risk management systems in place to deal with various risks.

The regulatory approval to NBFCs to act as *market-makers* in the CDS market would be accorded by the Chief General Manager-in-Charge, Department of Non-Banking Supervision, Central Office, RBI, Mumbai on a case-by-case basis, on application for the same.

2.2.3 PDs intending to act as *market-makers* shall fulfil the following criteria:

a) Minimum Net Owned Funds of Rs. 500 crore;
b) Minimum CRAR of 15 per cent; and
c) Have robust risk management systems in place to deal with various risks.

The regulatory approval to PDs to act as *market-makers* in the CDS market would be accorded by the Chief General Manager, Internal Debt Management Department, Central office , RBI, Mumbai on a case-by-case basis, on application for the same.

2.2.4 In case a *market-maker* fails to meet one or more of the eligibility criteria subsequent to commencing the CDS transactions, it would not be eligible to sell new protection. As regards existing contracts, such protection sellers would meet all their obligations as per the contract.

2.2.5 The list of eligible *market-makers* will be available on RBI website.

2.3 **Reference entity**

The reference entity in a CDS contract, against whose default the protection is bought and sold, shall be a single legal resident entity [the term resident will be as defined in Section 2(v) of Foreign Exchange Management Act, 1999] and the direct obligor for the reference asset/obligation and the deliverable asset/obligation.

2.4 **Reference obligation (eligible underlying for CDS)** - *eligibility criteria*

(i) CDS will be allowed only on listed corporate bonds as reference obligations.

(ii) However, CDS can also be written on unlisted but rated bonds of infrastructure companies. Besides, unlisted/unrated bonds issued by the SPVs set up by infrastructure companies are also eligible as reference obligation. Such SPVs need to make disclosures on the structure, usage, purpose and performance of SPVs in their financial statements. In the case of banks, the net credit exposure on account of such CDS should be within the limit of 10% of investment portfolio prescribed for unlisted/unrated bonds as per extant guidelines issued by RBI. For this purpose, an Infrastructure Company would be one which is engaged in the list of items included in the infrastructure sector as defined in the DBOD circular RBI/2010-11/68 DBOD No.Dir.BC.14/13.03.00/ 2010-11 dated July 1, 2010 and updated from time to time.

(iii) NBFCs and PDs shall adhere to the extant regulatory guidelines prescribed in respect of credit exposure limits for investment in unlisted/unrated bonds.

(iv) The reference obligations are required to be in dematerialised form only.

(v) The reference obligation of a specific obligor covered by the CDS contract should be specified *a priori* in the contract and reviewed periodically for better risk management.

(vi) Protection sellers should ensure not to sell protection on reference entities/obligations on which there are regulatory restrictions on assuming exposures in the cash market such as, the restriction against banks holding unrated bonds, single/group exposure limits and any other restriction imposed by the regulators from time to time.

2.5 **Requirement of the underlying in CDS**

2.5.1 The *users* cannot buy CDS for amounts higher than the face value of corporate bonds held by them and for periods longer than the tenor of corporate bonds held by them.

2.5.2 *Holding CDS Protection by users without having an underlying*: Since the *users* are envisaged to use the CDS only for hedging their credit risks, assumed due to their investment in corporate bonds, they shall not, at any point of time, maintain naked CDS protection i.e. CDS purchase position without having an eligible underlying.

2.5.3 Proper caveat may be included in the agreement that the *market-maker*, while entering into and unwinding the CDS contract, needs to ensure that the *user* has exposure in the underlying. Further, the *users* are required to submit an auditor's certificate or custodian's certificate to the protection sellers or novating *users*, of having the underlying bond while entering into/unwinding the CDS contract.

2.6 **Exiting CDS transactions by *users***

2.6.1 *Users* cannot exit their bought positions by entering into an offsetting sale contract. They can exit their bought position by either unwinding the contract with the original counterparty or, in the event of sale of the underlying bond, by assigning (novating) the CDS protection, to the purchaser of the underlying bond (the "transferee") subject to consent of the original protection seller (the "remaining party"). After assigning the contract, the original buyer of protection (the "transferor") will end his involvement in the transaction and credit risk will continue to lie with the original protection seller.

2.6.2 In case of sale of the underlying, every effort should be made to unwind the CDS position immediately on sale of the underlying. The *users* would be given a maximum grace period of ten business days from the date of sale of the underlying bond to unwind the CDS position.

2.6.3 In the case of unwinding of the CDS contract, the original counterparty (protection seller) is required to ensure that the protection buyer has the underlying at the time of unwinding. The protection seller may also ensure that the transaction is done at a transparent market price and this must be subject to rigorous audit discipline.

2.7 **CDS transactions between related parties**

CDS transactions are not permitted to be entered into either between related parties or where the reference entity is a related party to either of the contracting parties. Related parties for the purpose of these guidelines will be as defined in 'Accounting Standard 18 – Related Party Disclosures'. In the case of foreign banks operating in India, the term 'related parties' shall include an entity which is a related party of the foreign bank, its parent, or group entity.

2.8 **Other Requirements**

The single-name CDS on corporate bonds should also satisfy the following requirements:

(i) the *user* (except FIIs) and *market-maker* shall be resident entities;

(ii) the identity of the parties responsible for determining whether a credit event has occurred must be clearly defined *a priori* in the documentation;

(iii) the reference asset/obligation and the deliverable asset/obligation shall be to a resident and denominated in Indian Rupees;

(iv) the CDS contract shall be denominated and settled in Indian Rupees;

(v) Obligations such as asset-backed securities/mortgage-backed securities, convertible bonds and bonds with call/put options shall not be permitted as reference and deliverable obligations;

(vi) CDS cannot be written on interest receivables;

(vii) CDS shall not be written on securities with original maturity up to one year e.g., Commercial Papers (CPs), Certificate of Deposits (CDs) and Non-Convertible Debentures (NCDs) with original maturity up to one year;

(viii) the CDS contract must represent a direct claim on the protection seller;

(ix) the CDS contract must be irrevocable; there must be no clause in the contract that would allow the protection seller to unilaterally cancel the contract. However, if protection buyer defaults under the terms of contract, protection seller can cancel/revoke the contract;

(x) the CDS contract should not have any clause that may prevent the protection seller from making the credit event payment in a timely manner, after occurrence of the credit event and completion of necessary formalities in terms of the contract;

(xi) the protection seller shall have no recourse to the protection buyer for credit-event losses;

(xii) dealing in any structured financial product with CDS as one of the components shall not be permitted; and

(xiii) dealing in any derivative product where the CDS itself is an underlying shall not be permissible.

2.9 **Documentation**

Fixed Income Money Market and Derivatives Association of India (FIMMDA) shall devise a Master Agreement for Indian CDS. There would be two sets of documentation: one set covering transactions between *user* and *market-maker* and the other set covering transactions between two *market-makers*. While drafting documents, it would be absolutely necessary for the participating institutions to ensure that transactions are *intra vires* and legal risks are reduced to the maximum possible extent.

2.10 **Standardisation of the CDS Contract**

The CDS contracts shall be standardized. The standardisation of CDS contracts shall be achieved in terms of coupon, coupon payment dates, etc. as put in place by FIMMDA in consultation with the market participants.

2.11 **Credit Events**

2.11.1 The credit events specified in the CDS contract may cover: *Bankruptcy*, *Failure to pay, Repudiation/moratorium*, *Obligation acceleration, Obligation default, Restructuring approved under Board for Industrial and Financial Reconstruction (BIFR) and Corporate Debt Restructuring (CDR) mechanism and corporate bond restructuring.* The contracting parties to a CDS may include all or any of the approved credit events. Further, the definition of various credit events should be clearly defined in the bilateral Master Agreement prepared by FIMMDA.

2.11.2 *Succession event*: Participants may adhere to the provisions given in the Master Agreement for CDS prepared by FIMMDA.

2.11.3 *Determination Committee:* The Determination Committee (DC) shall be formed by the market participants and FIMMDA. The DC shall be based in India and shall deliberate and resolve CDS related issues such as Credit Events, CDS Auctions, Succession Events, Substitute Reference Obligations, etc. The decisions of the Committee would be binding on CDS market participants. In order to provide adequate representation to *users,* at least 25 per cent of the members should be drawn from the *users.*

2.12 **Settlement methodologies**

2.12.1 The parties to the CDS transaction shall determine upfront, the procedure and method of settlement (cash/physical/auction) to be followed in the event of occurrence of a credit event and document the same in the CDS documentation.

2.12.2 For transactions involving *users*, physical settlement is mandatory. For other transactions, *market-makers* can opt for any of the three settlement methods (physical, cash and auction), provided the CDS documentation envisages such settlement. While the physical settlement would require the protection buyer to transfer any of the deliverable obligations against the receipt of its full notional / face value, in cash settlement, the protection seller would pay to the protection buyer an amount equivalent to the loss resulting from the credit event of the reference entity.

2.12.3 *Auction Settlement*: Auction settlement may be conducted in those cases as deemed fit by the DC. Auction specific terms (e.g. auction date, time, market quotation amount, deliverable obligations, etc.) will be set by the DC on a case by case basis. If parties do not select Auction Settlement, they will need to bilaterally settle their trades in accordance with the Settlement Method (unless otherwise freshly negotiated between the parties).

2.13 **Accounting**

The accounting norms applicable to CDS contracts shall be on the lines indicated in the 'Accounting Standard AS-30 – Financial Instruments: Recognition and Measurement', 'AS-31, Financial Instruments: Presentation' and 'AS-32 on Disclosures' as approved by the Institute of Chartered Accountants of India (ICAI). As the accounting standards on derivatives are still evolving, market participants, with the approval of their respective boards, shall adopt appropriate norms for accounting of CDS transactions which are in compliance with the Indian accounting standards and approved by the regulators from time to time.

2.14 **Pricing/Valuation methodologies for CDS**

2.14.1 Market participants should put in place appropriate and robust methodologies for marking to market the CDS contracts on a daily basis. These methodologies should be validated by external validators periodically for reliability.

2.14.2 Market participants shall use FIMMDA published daily CDS curve to value their CDS positions. Day count convention may also be decided by FIMMDA in consultation with market participants. However, if a proprietary model results in a more conservative valuation, the market participant can use that proprietary model.

2.14.3 For better transparency, market participants using their proprietary model for pricing in accounting statements shall disclose both the proprietary model price and the standard model price in notes to the accounts that should also include an explanation of the rationale behind using a particular model over another.

3 **Risk Management**

3.1 **Risks in CDS**

Proper assessment and management of various risks such as sudden increase in credit spreads resulting in mark-to-market losses, high incidence of credit events, Jump-to-Default Risk, basis risk, counterparty risk, etc., is essential. It needs to be ensured that CDS are not used to build up excessive leveraged exposures. The market participants need to take various risks associated with CDS into account and build robust risk management architecture to manage the same.

3. 2 **Prudential norms for risk management in CDS**

3. 2.1 **Counterparty Credit Exposures**

Protection seller in the CDS market shall have in place internal limits on the gross amount of protection sold by them on a single entity as well as the aggregate of such individual gross

positions. These limits shall be set in relation to their capital funds. Protection sellers shall also periodically assess the likely stress that these gross positions of protection sold, may pose on their liquidity position and their ability to raise funds, at short notice.

3.2.2 **Computation of Credit Exposure**

Ceilings for all fund-based and non-fund based exposures including off-balance sheet exposures should be computed in relation to total capital as defined under the extant capital adequacy standards. This will be applicable to determine the exposure arising out of CDS transactions as well. The protection seller shall treat his exposure to the reference entity (on the protection sold) as his credit exposure and aggregate the same with other exposures to the reference entity for the purpose of determining various prudential limits like single / group exposure, capital market exposure, real estate exposure, exposure to NBFCs etc. The protection buyer shall replace his original exposure to the reference entity, with that of the protection seller.

3.2.3 **Other issues related to exposure norms**

The benefits available under special category of assets such as priority sector lending/export finance will not be available to the protection seller (bank) when protection is sold on such assets as they do not incur any fund-based exposure.

3.3 **Collateralisation and Margining**

For CDS transactions, the margins would be maintained by the individual market participants. In this regard, market participants shall adhere to the following requirements:

a) All market participants should lay down a separate margin policy for managing the counterparty credit risk on account of CDS transactions. Margin policy should prescribe the minimum level of margin to be called for.

b) Margins may be maintained on net exposure to each counterparty on account of CDS transactions.

c) Till the requisite infrastructure is put in place, the positions should be marked-to-market daily and re-margined at least on a weekly basis or more frequent basis as decided between the counterparties.

   Participants may maintain margins in cash or Government securities.

3.4 **Market Risk Exposure**

As regards capturing of market risk, participants may adhere to the following:

a) The quantum of CDS protection sold (net) on a reference entity shall be taken as actual credit exposure to the reference entity and thereby would be covered under the relevant regulatory exposure limits.

b) Protection sellers, with the approval of their Board, shall fix a limit on their Net Long [1] risk position in CDS contracts, in terms of Risky PV01, as a percentage of the the Total Capital Funds.

c) Since CDS represents idiosyncratic risk on individual obligors, no netting of Risky PV01 across obligors is allowed.

d) The Board of Directors shall periodically review these limits and details of the limits along with the rationale may be submitted to the respective regulatory departments of the Reserve Bank.

e) The gross PV01 of all non-option rupee derivatives should be within 0.25 per cent of the net worth of the banks / PDs / NBFCs as on the last balance sheet date (in terms of circular DBOD. No.BP.BC.53/21.04.157/2005-06 dated December 28, 2005).

f) The CDS participants must adhere to the comprehensive guidelines on derivatives issued vide circular RBI / 2006 – 2007 / 333 DBOD.No.BP.BC.86 / 21.04.157 / 2006-07, dated April 20, 2007 and updated from time to time.

3.5 **Issues Relating to Capital Adequacy Requirement**

Participants shall follow the capital adequacy guidelines for CDS issued by their respective regulators.

3.6 **Risk Management – Role of Board and Senior Management**

3.6.1 Participants should consider carefully all related risks and rewards before entering into CDS transactions. They should not enter into such transactions unless their management has the ability to understand and manage properly the credit and other risks associated with CDS. They should establish sound risk management policies and procedures integrated into their overall risk management.

3.6.2 Participants which are protection buyers should periodically assess the ability of the protection sellers to make the credit event payment as and when they may fall due. The results of such assessments should be used to review the counterparty limits.

[1] Net long position is the total CDS sold positions netted by the CDS bought positions of the same reference entity.

3.6.3 Participants should be aware of the potential legal risk arising from an unenforceable contract, e.g., due to inadequate documentation, lack of authority for a counterparty to enter into the contract (or to transfer the asset upon occurrence of a credit event), uncertain payment procedure or inability to determine market value when required.

3.7 Policy requirements

Before actually undertaking CDS transactions, participants shall put in place a written policy on CDS which should be approved by their respective Board of Directors. The Board approved policy on CDS should be reviewed periodically, at least once in a year. The policy should lay down the internal guidelines which should include, *inter alia,* various risk limits on CDS positions, procedures, risk management practices, the internal control systems to ensure adherence to the regulatory and internal guidelines, reporting of CDS activity to the Board and the regulators, procedure to deal with violations, etc. Participants shall also put in place a system to detect violations, if any, immediately, preferably within the same trading day. Additionally, the Board approved risk management policy should cover at the minimum:

a) The strategy – i.e., whether CDS would be used for hedging or for trading, risk management and limits for CDS;
b) Authorisation levels for engaging in such business and identification of those responsible for managing it;
c) Procedure for measuring, monitoring, reviewing, reporting and managing the associated risks like credit risk, market risk, liquidity risk and other specific risks;
d) Appropriate accounting and valuation principles for CDS;
e) Determination of contractual characteristics of the product; and
f) Use of best market practices.

3.8 Risk Management Architecture

3.8.1 Systems and Controls

Senior management of the participants should establish an independent framework for reporting, monitoring and controlling all aspects of risks, assessing performance, valuing exposures, monitoring and enforcing position and other limits. The systems and controls should:

(i) ensure that (a) the CDS contract confirmations are received promptly and verified for accuracy; (b) appropriate systems are in place to track the delays in confirmations and to escalate the delays in such confirmations to the appropriate levels within the organisation; and (c) the systems provide for an appropriate authority (preferably the CEO) to decide on cessation of dealing with the counterparties where the confirmations are in arrears beyond a reasonable number of business days. Physical

confirmations shall not be required if the transactions are matched and confirmed on the trade reporting platform.

(ii) ensure adequate Management Information Systems (MIS) to make senior management aware of the risks being undertaken, which should provide information on the types of transactions carried out and their corresponding risks, the trading income/losses realized/unrealised from risks/exposures taken, contribution of CDS to the total business and the risk portfolio and value of CDS positions. The MIS should be timely, accurate and comprehensive and adequately controlled and secured. Internal information systems used should ensure adequate segregation of duties and security controls so as to ensure that data integrity is maintained.

(iii) assess and account for the possibility of default correlation between reference asset and the protection provider.

(iv) the risk management system is stress-tested and participants may also factor in the CDS-related adverse scenarios as part of their stress-testing processes.

(v) ensure that activities in the CDS market, if undertaken, are properly supervised and are subject to an effective framework of internal controls and audits so that transactions are in compliance with regulations and internal policy of execution, recording, processing and settlement.

3.8.2 In addition to the internal control mechanisms, CDS transactions should be subject to audit discipline for ensuring compliance with the regulatory guidelines and internal control system put in place. The concurrent auditors/internal should specifically verify compliance with these instructions, as well as with internal guidelines and report violations, if any, within a reasonably short time, to the appropriate internal authority. As part of their monthly reporting, concurrent auditors/internal auditors should verify whether the independent back/mid-office has taken cognisance of lapses, if any, and whether they have reported the same within the required time-frame to the appropriate internal authority. Any violation of regulatory guidelines noticed in this regard should immediately be reported by the participants to their respective regulators.

3.9 **Procedures**

The market participants should have adequate procedures for:

(i) Measuring, monitoring, reviewing, reporting and managing the associated risks,

(ii) Analysis of all credit risks to which the market participants will be exposed, the minimisation and management of such risks,

(iii) Ensuring that the credit risk of a reference asset is captured in normal credit approval and monitoring regime. This function in no case should be entrusted to the desk dealing with CDS,

(iv) Management of market risk associated with CDS held by participants in their trading books by measuring portfolio exposures, at least daily, using robust market-accepted methodology,

(v) Management of the potential legal risk arising from unenforceable contracts and uncertain payment procedures.

3.10 Prevention of mis-selling and market abuse

Market-makers may ensure adherence to suitability and appropriateness criteria (as stipulated in the circular RBI / 2006 – 2007 / 333 DBOD.No.BP.BC.86 / 21.04.157 / 2006-07, dated April 20, 2007) while dealing with *users*. CDS transactions may be conducted in a transparent manner in relation to prices, market practices etc. From the protection buyer's side, it would be appropriate that the senior management is involved in transactions to ensure checks and balances. In this connection, following may be ensured by the protection sellers:

a) CDS transactions shall be undertaken only on obtaining from the counterparty, a copy of a resolution passed by their Board of Directors, authorising the counterparty to transact in CDS.

b) The product terms are transparent and clearly explained to the counterparties along with risks involved.

4. Reporting Requirements

4.1 Trade Reporting

4.1.1 *Market-makers* shall report their CDS trades with both *users* and other *market-makers* on the reporting platform of CDS trade repository within 30 minutes from the deal time.

4.1.2 The *users* would be required to affirm or reject their trade already reported by the *market- maker* by the end of the day.

4.1.3 In the event of sale of underlying bond by the *user* and the *user* assigning the CDS protection to the purchaser of the bond subject to the consent of the original protection seller, the original protection seller should report such assignment to the trade reporting platform and the same should be confirmed by both the original *user* and the new assignee.

4.2 Supervisory Reporting

In addition to the reporting done on the trade reporting platform, the participants shall also report to their regulators information as required by them such as risk positions of the participants *vis-à-vis* their networth and adherence to risk limits, etc. As regards the

Reserve Bank regulated entities, the information shall be reported to the respective regulatory department of the Reserve Bank on a fortnightly basis, within a week after the end of fortnight, as per the proforma given in Annex.

Annexure

CDS Contract Reporting Formats

CDS Form I: Trade Reporting format (on the electronic reporting platform)

Name of the reporting entity: Date:

(Amount in Rs. crore, Residual maturity/Tenor in years)

Name of the Counter-party	Details of the Reference Entity/			Details of the underlying (in case of users)		Details of Protection				Settlement (cash/Physical)	If being unwound,	If being assigned,	
	Name	Rating	Sector	Amount (FV)	Residual Maturity	Bought/ Sold	Amount	Tenor	Price/spread (bps)		Price (in bps)	Name of the assignee	Price (in bps)

CDS Form II. Fortnightly Regulatory Reporting

Name of the Entity	
Date of Reporting	

Sl. No	Name of the Counterparty	Tenor	Protection Bought					Protection Sold		Net Position	Risky PV01
			FV of the underlying	Tenor of the underlying	Notional amount	Spread (bps)	Hedging (H) or trading (T)	Notional amount	Spread (bps)		
1											
2											
3											

Sl. No	Name of the reference entity	Tenor	Protection Bought					Protection Sold		Net Position	Risky PV01
			FV of the underlying	Tenor of the underlying	Notional amount	Spread (bps)	Hedging (H) or trading (T)	Notional amount	Spread (bps)		
1											
2											