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ARE CDS CONFIABLE INDEXES? THEIR ROLE IN THE FINANCIAL CRISIS AND THE PROSPECTIVES OF FUTURE REGULAMENTATIONS

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C O N T E N T S

3 CREDIT DEFAULT SWAPS Pro and Cons

Introduction

The aim of this thesis is to explain the role of Credit Default Swaps, which are the most recent financial instruments in the derivative market, in the current financial crisis, and if they can be considered a confinable index.

The first chapter analyses how Credit Default Swaps work, in particular way: their principal characteristics, the main aspects of the market, the role in the Mortgage Backed Security market, the involvement in the major companies' balance sheet.
At the end of this first part, I focused the attention on the AIG case, which represents one of the most important example in the development of the crisis.

The second chapter is dedicated to sovereign CDS. In particular, the escalation in the crisis.
Firstly I gave a general explanation of CDS before and during the world meltdown. After that I analysed this general behaviour on Europe and USA side.

Finally, the third chapter can be considered a kind of opinion report expressed by the European Union and important economist, such as Peter J. Wallison, Luigi Zingales and Oliver Hart.

1 GENERAL FEATURES
ABOUT CREDIT DEFAULT SWAPS

1.1 Introduction to SWAP

In order to understand the CDS's dynamic belonging to the derivatives market, we start our analysis defining swap.

If two parties agree to exchange periodic interest payments, they agree to a particular contract called Swap. This is a contract in which, generally, one party agrees to pay fixed interest payments on designated dates to a counterparty who, in turn, agrees to an *interest rate swap,* which is the rate on Treasury bills or the prime rate.

The best conditions which a company can achieve is transfering its financial position to a second party (this can be made thanks to a clause contained in the swap contract), which will ask an higher interest rate, and to another commission in order to protect itself for the new application of credit.

There are various types of swaps on the basis of cash exchanged:

• Interest rate swaps (interest rate swaps, IRS) is a contract that provides a periodic exchange of cash flow between two operators. It is calculated on the basis of interest rates and defaults and a different capital theoretical reference;

• Currency swaps (currency swaps, CS) is a contract between two counterparties exchange a stream of payments over time denominated in two different currencies. It stands as spot trading of one currency and simultaneously in an exchange of equal amount but opposite in sign to a date in the future.

• commodity swap: a contract between two counterparties exchange a stream of payments over time indexed to the change of a commodity on the one hand and the other a fixed rate. A common example is swap on oil prices (Oil swaps).
• swap protection from the bankruptcy of a company (credit default swap, CDS). It is an insurance contract that provides for the payment of a premium in exchange for a periodic payment protection in case of failure of a benchmark.
At this point we focus our attention on Credit Default Swaps. The subject of examining the cash-CDS basis, and answering questions such as – why it exists, how to measure & monitor the basis and how to react to changes in the measure and understanding relative value – are key questions for all credit investors.

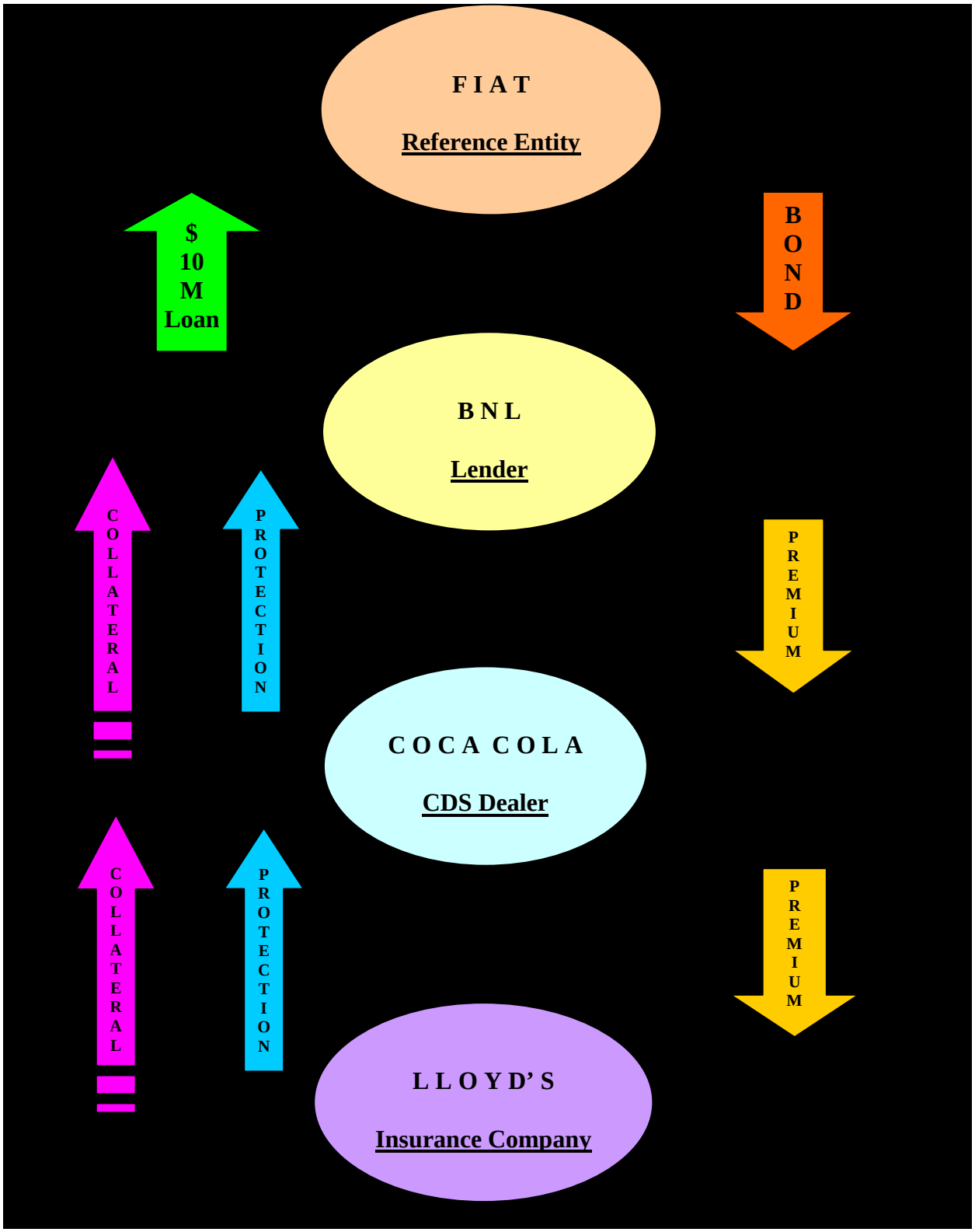
1.2 Definition of CDS

A credit default swap (CDS) is a kind of insurance against credit risk. It is a privately negotiated bilateral contract. The buyer of protection pays a fixed fee or premium to the seller of protection for a period of time and if a certain pre-specified "credit event" occurs, the protection seller pays compensation to the protection buyer. A "credit event" can be a bankruptcy of a company, called the "reference entity," or a default of a bond or other debt issued by the reference entity. If no credit event occurs during the term of the swap, the protection buyer continues to pay the premium until maturity.
In contrast, it should a credit event occur at some point before the contract's maturity, the protection seller owes a payment to the buyer of protection, thus insulating the buyer from a financial loss.

CDSs can also be used as a way to gain exposure to credit risk. While the risk profile of a CDS is similar to a corporate bond of the reference entity, there are some important differences. A CDS does not require an initial funding, which allows leveraged positions. Moreover, a CDS transaction can be entered where a cash bond of the reference entity of a particular maturity is not available. Further, by entering a CDS as protection buyer, one can easily create a ‘short’ position in the reference credit.

With all these attributes, CDSs can be a great tool for diversifying or hedging one’s portfolio.

1.3 How Credit Default Swaps Work



The figure shows a series of simple CDS transactions. BNL has bought a $10 million bond from FIAT, which is "the reference entity." BNL now has exposure to FIAT.

If BNL believes that FIAT's prospects are declining, or BNL wants to diversify its assets it has two choices: sell the bond or transfer the credit risk. If BNL does not want to sell the bond, it can exploit a CDS contract in order to eliminate most or all of the credit risk of FIAT. A CDS, as said before, is nothing more than a contract in which one party (the protection seller) agrees to reimburse another party (the protection buyer) against a default on a financial obligation by a third party (the reference entity). In the figure the reference entity is FIAT, the protection buyer is BNL and the protection seller is Coca Cola.

In this example, BNL purchases protection against its entire loan to FIAT, however it could also have purchase protection for a portion of the principal amount of the $10 million bond. The amount of protection that BNL purchases is called the "notional amount."

The CDS market is a dealer market, so transactions take place through dealers, over the counter rather than on an exchange.

The structure of the CDS is simple. Coca Cola agrees to pay $10 million if FIAT defaults, and BNL agrees to pay quarterly an annual premium to Coca Cola. The size of this payment or premium will reflect the risk that Coca Cola believes it is assuming in protecting BNL against FIAT's default. If FIAT is a good credit, the premium will be small, and on the contrary, the premium would be larger when the credit risk is high in FIAT.

Under CDS contract, BNL can request collateral from Coca Cola in order to assure Coca Cola's performance. Although Coca Cola decides to acquire a offsetting transaction for every risk it takes on. So Coca Cola enters a CDS with Lloyd's, and this latter chooses the amount of collateral. The

transfer of BNL's risk to Coca Cola and then to Lloyd's has been described by many CDS critics as a "daisy chain" of obligations. Each transaction between counterparties is a “secret” transaction, which means that each party cares about its creditor. Consequently BNL couldn't know about the contract between Lloyd's and Coca Cola and it will never look at Lloyd's performance.

In each transaction every party in the chain has two different risks: the first is about the capability of its counterparty to perform or not its obligation before or after FIAT defaults. If Coca Cola becomes bankrupt before FIAT defaults, BNL will have to find a new protection seller; if Coca Cola defaults after FIAT defaults, BNL will lose the protection that it signed in the contract. The same is true for Coca Cola and Lloyd's. If Coca Cola defaults before FIAT in the CDS market, the premium, in this case, will be higher corresponding to the premium which should be paid before. Although this might mean a potential loss to any of these parties.

It is important at this point to understand how the collateral process works. In particular, the buyer or the seller in a CDS transaction may be "in the money" at any point: the CDS spread, based on the market judgments, may be increasing or decreasing, depend on what the market presumes about the reference entity's credit. At the moment the CDS transaction was entered, if the credit of the reference entity begins to decline, the CDS spread will rise, consequently the buyer is "in the money":it is paying a lower premium than the risk would guarantee. Depending on the terms of the original agreement, the seller then may have to post collateral. But if the reference entity's credit improves, (e.g. its business prospects are better), then the CDS spread will fall and the seller is in the money.

If FIAT defaults, assuming that there are no other defaults among the parties, there is a settlement among the parties, in which Lloyd's is the last

obligor. But if Lloyd's defaults, Coca Cola becomes the ultimate payer, which ends up holding the bag.

Critics of CDSs argue that this "daisy chain" is an example of interconnections created by CDSs that might in turn create systemic risk as each member of the string of transactions defaults because of the new liability it must assume. But if CDSs did not exist, BNL would suffer the loss associated with FIAT's default, and there is no reason to believe that the loss would stop with BNL because it is undoubtedly indebted to others, and its loss on the loan to FIAT might cause BNL to default on these obligations. In other words, the credit markets are already interconnected. With or without CDSs, the failure of a large enough participant can generate a kind of “domino effect” through this highly interconnected structure. CDSs simply move the risk of that result from BNL to Coca Cola or Lloyd's, but they do not materially increase the risk created when BNL made its loan to FIAT. No matter how many defaults occur in the series of transactions, there is still only one $10 million loss. The only question is who ultimately pays it[1].

In this situation it can be recognized a concept of leverage CDS, in fact sellers of leveraged CDS protection benefit from having to use less capital compared to buying loans or using total return swaps, as they have to commit only a portion of the notional as collateral with no residual cost for the balance[2].

The possibility of borrowing against the asset makes it possible for fewer investors to hold all the asset in the economy.

1 American enterprise institute for public policy research, December 2008, by Peter J. Wallison

2 Hedge funds journal, august 2005

With leverage, the price rose because the marginal buyer became a more optimistic agent, and the price came to reflect his beliefs instead of the more pessimistic marginal buyer that obtained without leverage[3].

Depending on the documentation, credit default swaps can be physically settled or cash settled. With physical settlement the protection buyer delivers actual securities, to the protection seller. The seller then pays the buyer a sum of money equal to the notional or effective amount of the transaction.

Nevertheless the protection buyer will deliver the cheapest asset that is available for delivery and is in this sense long a delivery option.

Once the seller receives the asset they have a choice. They can sell it at the prevailing market price or alternatively participate in any debt workout.

With cash settlement a dealer poll is taken. Dealers are asked the price at which the Reference Obligation is trading. An average price is then calculated, (this process may vary with the documentation, the dealer poll can be an average price on a particular day rather than an average over a number of days). The cash settlement amount is then calculated.

The protection buyer normally pays the seller the accrued premium on the CDS from the last payment date to the credit event date.

Cash settlement can have certain advantages. When the number of outstanding CDS trades exceeds the amount of deliverables cash settlement can help. It reduces the possibility that the price of the deliverable instrument can rise due to artificial supply and demand conditions.

3 Fostel Geanakoplos March, 2007

It is absolutely essential to have CDS trades properly documented. This means that you need to take legal opinion on the contract you are entering into[4].

1.4 The size of the Credit Default Swaps Market

Back in the mid-1990s, one of the first CDS provided protection on Exxon by the European Bank for Reconstruction and Development to JP Morgan.

Based on survey data from the Bank for International Settlements[5] (BIS), the total notional amount of the credit default swaps market was $6 trillion in 2004, $57 trillion by June 2008 and $41 trillion at the end of 2008. Credit default swaps contract that insure default risk of a single firm, are called single name contracts; contracts that provide protection against the default of many firms are called multi-name contracts.

Based on data from the DTCC (depository trust and clearing corporation), the size of the CDS market is $29 trillion on May 22, 2009 and it is a value underestimated because not all contracts are registered with the DTCC.

Actually it doesn't exist a unique data base which contains all the contracts that's why we provided both data (DTCC-BIS).

In the CDS market, for each buyer protection, there is a corresponding seller of protection. From that perspective, the total market value of outstanding credit default swap is zero.

The notional value of CDS is established by the two parties involved in the contract, the market value of the protection bought through CDS changes following the market conditions. A credit default swap's value is zero when

4 Www.barbicanconsulting.co.uk/creditdefaultswaps

5 Www.bis.org/statistics/derstats.html

the protection buyer pays the same amount of premium such as it has to get back from the protection seller in the case of reference entity's default. The value of CDS falls if default becomes less likely and increases if default becomes more likely.

1.5 What is the standardized documentation for the CDS?

The credit default swap market has experienced many problems because of an absence of widely certificated standardized documentation, since the terms and conditions of contracts were not precise enough.

As credit events occurred, disputes often erupted between the buyers and the sellers over the specific terms and conditions of the CDS contract.

The problem is that the protection buyer would want to interpret the scope of protection as widely as possible, while the seller would want to interpret it narrowly. This is understandable because a CDS is like an insurance policy, and the protection buyer, as the insured, would want to claim as much as possible for the insurance coverage, while the insurance company would always like to find the way to deny a claim and to pay as little as possible.

The lack of the standardized documentation stopped the growth of the CDS market. In 1999, ISDA published its new Master Agreement designed for credit derivatives contracts, followed with a series of amendments to improve the documentation for credit derivatives. More recently, ISDA published its new 2003 ISDA credit derivatives definitions. The new definitions significantly clarified many of the key concepts, and, therefore, cleared several sticky issues, which are summarized below.

A.Definition of “Bankruptcy”

Bankruptcy is deemed to have occurred only if it results in the default of the reference entity’s obligations instead of the 1999 definition which states that a bankruptcy may be deemed to have occurred if the company has taken any action towards a default. In the new definitions, on the contrary, controversy is less likely to erupt over whether bankruptcy has occurred or not, because the company has the duty to write an admission of its inability to pay debts and it must be made in a judicial, regulatory, or administrative filing.

B. Four options for “Restructuring”

Restructuring has been the most problematic credit event.

The main issue is that, even if bankruptcy or failure to pay occurs, restructuring of debt may not lead to losses for investors. But if investors suffer financial losses, the amount of losses is more difficult to

estimate, in the case of the restructuring of debt involves an exchange of bonds with different coupons and/or maturities.

Accordingly, the current ISDA agreement offers four options for treating the issue of restructuring as follows:

· **No Restructuring (NR):** This option excludes restructuring altogether from the contract, eliminating the possibility that the protection seller suffers a “soft” credit event that does not necessarily result in losses to the protection buyer.

· **Full Restructuring:** This allows the protection buyer to deliver bonds of any maturity after restructuring of debt in any form occurs.

· **Modified Restructuring:** Modified restructuring has become common practice in North America in last few years, which limits deliverable

obligations to bonds with maturity of less than 30 months after a restructuring.

· **Modified Modified Restructuring:** This is a "modified" version of the modified restructuring option, which resulted from the criticism of the modified restructuring that it was too strict with respect to deliverable obligations. Under the modified-modified restructuring, which is more popular in Europe, deliverable obligations can be maturing in up to 60 months after a restructuring.

C. Definitions of "Deliverable Obligations"

Under the 2003 definitions, the protection buyer is required to send the notice of physical settlement (NOPS), indicating exactly what obligation is going to be delivered. Note that in a physical delivery, the buyer of protection can choose, within certain limits, what obligation to deliver. This allows the buyer to deliver an obligation that is "cheapest-to-deliver." In general, the buyer can deliver the following obligations after a credit event:

· Direct obligations of the reference entity

· Obligations of a subsidiary of the reference entity (This is known as "qualifying affiliate guarantees," and the reference entity must hold 50% or more of the subsidiary's voting shares.)

· Obligations of a third party guaranteed by the reference entity (known as "qualifying guarantees," this option requires the option of "all guarantees" to be selected in the contract.)

In a CDS contract, parties can select what kind of obligations (*i.e.* payment, bond and/or loan) to be included in "deliverable obligations," as well as the characteristics of such obligations. Under the new documentations, the

conditions are specified in more details in order to avoid disputes between the swap parties.

1.6 Technical Appendix: CDS Pricing

A typical CDS contract usually specifies two potential cash flow streams – a fixed leg and a contingent leg. On the fixed leg side, the buyer of protection makes a series of fixed, periodic payments of CDS premium until the maturity, or until the reference credit defaults. On the contingent leg side, the protection seller makes one payment only if the reference credit defaults. The amount of a contingent payment is usually the notional amount multiplied by $(1 - R)$, where R is the recovery rate, as a percentage of the notional. Hence, the value of the CDS contract to the protection buyer at any given point of time is the difference between the present value of the contingent leg, which the protection buyer expects to receive, and that of the fixed leg, which he expects to pay, or, *Value of CDS (to the protection buyer) = PV [contingent leg] – PV [fixed (premium) leg]*.

In order to calculate these values, one needs information about the default probability (*i.e.* credit curve) of the reference credit, the recovery rate in a case of default, and risk-free discount factors (*i.e.* yield curve). A less obvious contributing factor is the counterparty risk. For simplicity, we assume that there is no counterparty risk and the notional value of the swap is $1 million.

First, let's look at the fixed leg. On each payment date, the periodic payment is calculated as the annual CDS premium, S, multiplied by Di, the accrual days (expressed in a fraction of one year) between payment dates. For example, if the CDS premium is 160 bps per annum and payments are made quarterly, the periodic payment will be:

Di S = 0.25(160) = 40 bps

However, this payment is only going to be made when the reference credit has NOT defaulted by the payment date. So, we have to take into account the survival probability, or the probability that the reference credit has not defaulted on the payment date. For instance, if the survival probability of the reference credit in the first three months is 90%, the *expected* payment at *t1*, or 3 months later, is:

q(ti)DiS = 0.9(.25)(160) = 36 bps

where *q(t)* is the survival probability at time *t*. Then, using the discount factor for the particular payment date, *D(ti),* the present value for this payment is $D(ti)q(ti)Sdi$.

Summing up PVs for all these payments, we get

$$\sum_{i=1}^{n} \mathbf{D(t_i)q(t_i)Sd_i} \quad \mathbf{(1)}$$

However, there is another piece in the fixed leg - the accrued premium paid up to the date of default when default happens between the periodic payment dates. The accrued payment can be approximated by assuming that default, if it occurs, occurs at the middle of the interval between consecutive payment dates. Then, when the reference entity defaults between payment date *ti-1* and payment date *ti*, the accrued payment amount is *Sdi/2*[6].

The probability that the default actually occurs in this time interval. In other words, the reference credit survived through payment date *ti-1*, but NOT to next payment date, *ti*. This probability is given by:

{*q(ti-1)- q(ti)*}.

6 Standard and Poor's Special Report, "Global CDO Issuance on the Rebound as Default Levels Stabilize in 2004," 28 Jan 2004.

Accordingly, for a particular interval, the expected accrued premium payment is:

$\{q(ti-1)- q(ti)\}S\, di/2$.

Therefore, present value of all expected accrued payments is given by

$$\sum^{n}_{i=1} D(t_i)\{q(t_{i-1})-q(t_i)\}Sd_i/2 \quad (2)$$

Now we have both components of the fixed leg. Adding (1) and (2), we get the present value of the fixed leg:

$$\text{PV (fixed leg)} = \sum^{n}_{i=1} D(t_i)q(t_i)Sd_i + \sum^{n}_{i=1} D(t_i)\{q(t_{i-1})-q(t_i)\}Sd_i/2 \quad (3)$$

Next, we compute the present value of the contingent leg. Assume the reference entity defaults between payment date *ti-1* and payment date *ti*. The protection buyer will receive the contingent payment of (*1-R*), where *R* is the recovery rate. This payment is made only if the reference credit defaults, and, therefore, it has to be adjusted by *{q(ti-1)- q(ti)}*, the probability that the default actually occurs in this time period. Discounting each expected payment and summing up over the term of a contract, we get:

$$\text{PV (contingent leg)} = (1-R)\sum^{n}_{i=1} D(t_i)\{q(t_{i-1})-q(t_i)\} \quad (4)$$

Plugging equation (3) and (4) into the equation in the beginning, we arrive at a formula for calculating value of a CDS transaction.

When two parties enter a CDS trade, the CDS spread is set so that the value of the swap transaction is zero (*i.e.* the value of the fixed leg equals that of the contingent leg). Hence, the following equality holds:

$$\sum^{n}_{i=1} D(t_i)q(t_i)Sd_i + \sum^{n}_{i=1} D(t_i)\{q(t_{i-1}) - q(t_i)\}Sd_i/2 = (1-R)\sum^{n}_{i=1} D(t_i)\{q(t_{i-1}) - q(t_i)\}$$

Given all the parameters, *S*, the annual premium payment is set as:[7]

$$S = (1-R)\sum^{n}_{i=1} D(t_i)(q_{i-1} - q_i) / \sum^{n}_{i=1} D(t_i)q(t_i)d_i + \sum^{n}_{i=1} D(t_i)(q_{i-1} - q_i)d_i / 2$$

1.7 Credit default swaps on Companies

Credit default swaps are easy to understand as insurance contracts. The best way to understand a plain vanilla CDS is as an insurance contract against the cost of default of a company, which is referred to as the "name" or the "reference entity".

The difference between insurance contracts and credit default swaps stands in two important ways:

1. You do not have to hold the bonds to buy a CDS on that bond, whereas with an insurance contract, you typically have to possess a direct exposure to obtain insurance. Because you don't have to hold bonds, the amount you insure is called the notional amount.
2. Insurance contracts are not traded; in contrast, CDS contract do trade over the counter market, that is a market where traders in different locations communicate and make deals by phone and through electronic messages.

There are also traded indices based on CDS, which are averages of contracts on different names. There are indices for corporate for Europe

7 Tavakoli structured finance, by Janet Tavakoli

(iTraxx Europe), the United States (CDX North America), as well as the other regions. The iTraxx Europe indices, for example, represents a basket of 125 CDS.

In principle, credit default swaps should make financial markets more efficient and improve the allocation of capital.

Historically, the investors who founded companies through debt had to keep low the credit risk of these companies. Now, the investors who provide the capital need not be those who bear the credit risk even if they could be the best equipped to do it. Separating the cost of funding and the credit risk also introduces greater transparency in the pricing of credit. These benefits from credit default swaps should reduce the cost of capital for firms.

After all, abstracting from market frictions, the price of a cds is purely about the expected default loss and thus is not affected by all the contractual forecasts of a bond like covenants, coupon, maturity, and so on.

Finally, if you believe that a company's risk of default is about to increase, it can be difficult to sell short a company's bonds, or certainly its loans. However, by buying offsetting hedge, you have the same economic benefit in the event of default as if you had a short position in the bond.

For example,if you sell a bond short when it trades at 100 and it trades at 50 after default, you earn 50 abstracting from the costs of selling short.

If you buy protection at 100, you receive 50 upon default, but have to pay the cost of protection.

Many economists argue that the existence of short-selling makes a market react more quickly to new information.

The greater efficiency of the CDS market incorporating information benefits the pricing of all securities of a firm. The separation of risk of

bearing and funding made possible by CDS can determine a scarce interest in banks side towards financial distress.

If we consider a bank that made a large loan to a firm and then buys credit default swap protection against a default of a loan consequently the bank looses its incentives to control the borrower. Of course, the seller of protection cannot monitor the firm in the same way as the bank would because it has no contractual relationship with the firm. As a result, there may be too little monitoring of the firm.

In practice, banks have many reasons to control their borrowers so that the effect of hedging on their monitoring incentives need not be material. Moreover, the ability of banks to hedge loans that they make also has benefits. For example, banks can keep lending to firms with which they have close relationship, even when they have already lent large amounts, because they can limit their risk exposure to such firms through the use of CDS. As a result, firms can get more credit than they would otherwise receive and on better terms.

In the past, the use of CDS by banks has been surprisingly limited. A possible reason why bank's use of CDS to hedge is limited is that, while the credit default swap market is typically quite liquid for large companies, it is usually not liquid for the smaller companies to which banks make a lot of loans.

The availability of CDS contracts can change the incentives of investors, too. Consider an investor who holds bonds of a company in financial distress. This company may approach the investor to suggest a restructuring of its debt.

The attitude of the investor towards the company's proposal will depend on whether the investor hedged his position through a credit default swap. An exchange of new bonds for old bonds; for example, will not

encourage payment under a CDS. An investor in this situation might prefer to drive the firm into bankruptcy, and thus trigger payments under the CDS, rather than work out a refinancing plan[8].

1.8 Credit Default Swaps on Subprime Mortgage-Backed securities

As with other mortgages, subprime mortgage can be securitized: that is, the mortgage are placed in a pool and notes are issued against that pool. The notes, often called tranches, differ in their priority in receiving payments. The super-senior notes always have a AAA rating. If and when mortgage default, the lowest-rated tranches suffer first from the default losses. As default losses mount, it becomes possible for the highly rated securities to suffer from default losses as well.

Consider now super-senior AAA-rated debt issued against a pool of mortgages. A financial institution holding that debt, who wishes to insure it, could do so by purchasing protection through a CDS. However, a problem arises here. The default of a debt-holder like Ford is a well-defined event, typically leading to bankruptcy or restructuring. But when holding a tranche of subprime securitized debt, a rising level of default on the underlying mortgages leads to a reduction in debt payments.

Because of this difference, credit default swaps written on securitized debt work differently from those written on corporate debt.

Supposing that an investor holds a AAA tranche with a principal amount of $ 100 million and the other tranches of the securitization have been wiped out; further, supposing that during a month $1 million of mortgages default

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so that the principal balance falls from $100 to $99 million. At that time, the investor would be paid $1 million from the CDS. Moreover, the CDS would still exist after that payment and would make payments as further mortgages default until maturity of the contract.

In 2006, the ABX indices on subprime securitization were introduced, representing a basket of credit default swap contracts on securitized subprime mortgages. An index would be based on average of CDS for same seniority securitization tranches. For instance, the AAA index for 2007-1 was based on an average of individual CDS on the largest AAA-rated securitization tranches issued in the second half of 2006.

These indices introduced greater transparency in the market for subprime debt as their trading facilitated price discovery for that debt. The ABX indices made it possible for investors to take views on the subprime market without owning subprime mortgages directly or indirectly as well as to obtain insurance on subprime mortgages.

Though CDS based on subprime mortgages provided investors with several valuable benefits, including improved price discovery and an ability to hedge the risks of subprime mortgages, many questions have been raised about whether the market of these instruments was efficient.

Actually, it’s clear that CDS on complicated debt instruments such as securitized subprime mortgages can be difficult to price.

In principal, the hedging benefit of credit default swaps should have made it possible for subprime risk to be located with those investors and institutions for which bearing such risk was most efficient. However, there are two problems with this simple view:

1. The seller of these CDS, including some specialty “monoline” insurance companies (AIG case).

2. Because of indexes are built in leverage, CDS may make it possible for investors to take riskier positions than they could otherwise.

The most optimistic and least risk-adverse investors may be those, whose investment opportunities are expanded by the availability of these instruments, which may lead to price distortions where the risk is underpriced.

Now we focus the analysis on the recent financial crisis in order to understand which was the role of credit default swaps in that context, especially in the AIG case[9].

1.9 Counterparty risks and Financial Crisis

During the credit crisis, credit default swap market worked remarkably well. Despite of a huge and unexpected losses in underlying mortgage securities and near chaos in the financial sector at times, the credit default swap market remained fairly liquid for long periods over the years. Further, the market handled extremely large default efficiency.

Good examples are how well it processed the default of Lehman and the AIG.

The notional amount of protection bought on Lehman was unclear at the time of the bankruptcy. Estimates for the total notional amount of credit default swaps written on Lehman ranged from $72 billion to $400 billion[10].

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10 The $72 billion figure is the amount reported by the DTCC for swaps that settled through the DTCC. The $400 billion figure was reported by the *Financial Times* on October 6, 2008, quoting a Citi analyst stating that "there could be $400bn of credit derivatives referenced to Lehman"(FT.com, 2008).

The lower-end estimate is firm: the DTCC had contracts on Lehman for a notional amount of $72 billion registered in its warehouse.

The settlement for these contracts went smoothly.

The net exchanges of cash for Lehman were rather small: $5.2 billion were exchanged through the DTCC. Many institutions were both buyers and sellers of protection on Lehman, which contributed to keep the net positions small. As mentioned before, not all contracts are registered through the DTCC, and surely additional contracts were especially difficult to settle either or that parties defaulted on these contracts.

If the credit default swap market work well, why it is considered to have been so dangerous?

CDS were clearly part of the story of how banks and other financial institutions ended up holding mortgage securities on which they made large unexpected losses. Because of the way capital requirements are determined, financial institutions generally were able to hold less regulatory capital if they packaged loans in securities and held them on their balance sheet than if they just kept the loans on their balance sheet. Further, some financial institutions apparently believed that it was advantageous for them to hold super-senior tranches of securitizations on their books if they insured them with CDS. Regulations across countries allowed financial institutions to set aside less capital because these institutions had bought protection through CDS.

There was therefore a large demand for insurance on super-senior tranches that was partly met by credit default swaps from AIG. However, the losses on CDS referencing subprime mortgage securitization came about because of defaults on subprime mortgages and because of disappearing liquidity for such securitizations. The CDS market caused neither the mortgage default nor the disappearance of liquidity.

Though some market participants were surely too optimistic about the prospects of the subprime market, CDS on subprime securitization cannot be blamed for that excessive optimism. In fact, it is more likely that the ABX indices made it harder for investors to remain excessively optimistic.
Many observers have focused on problems caused by counterparty risk in arguing that derivatives and especially CDS made the credit crisis worse.
The argument has two sides:

1. Derivatives lead to a huge web of exposures, which, in turn, lead other institutions to fail as they make losses on their exposures. As a result, this web could lead to a collapse of the financial system and to considerable uncertainty about the solvency of financial institutions in the event of the failure of a major financial institutions.
2. CDS heighten this concern because their value jumps, often by large amount, when a default occurs.

When Lehman failed, it had close to one million derivatives contracts on its books with hundreds of financial firms. Some of these firms expected to receive payments from Lehman on their derivatives. Suddenly, Lehman was no longer in a position to make these payments because it had filed for bankruptcy. One might therefore be concerned that these firms became financially weaker, leading to contagion of Lehman's problems through losses on derivatives contracts because of the failure of a counterparty. However, the typical derivatives transaction uses protections against the risks of a counterparty not meeting its obligations. The biggest protection is generally the use of collateral, and usually the amount of collateral insuring

a counterparty's performance on a contract changes with the value of the contracts.

Collateral arrangements were frequent, but they were not universal. According to a survey by the International Swaps and Derivatives Association, 63 percent of derivatives contracts were subject to such agreements in 2007, compared to 30 percent in 2003. Consequently, there is still a possibility of contagion through derivatives exposures.

However, that possibility is limited by the incentives of counterparties to manage their risk exposures actively as counterparty risk changes and by the fact that parties not subject to collateral arrangements are often very highly rated counterparties.

At the same time, however, a failure of a financial institution can lead to large changes in derivatives prices as well as derivatives liquidity, so that the collateral amounts held immediately before the failure may not be sufficient to cover possible losses if other counterparties default.

Another issue with credit default swaps is that because a default is a discrete event, it can lead to large jumps in the value of these contracts.

With such jumps to default, collateral will not be enough to protect buyers of protection in the event of a counterparty default, which could then lead to additional failures of financial institutions.

Another reason for concerns about CDS market is the sheer size of gross exposures of dealers. However, even if a dealer's net derivatives receivables are zero, the dealer might still pose significant risks to the financial system. Consider a dealer who has $1 trillion notional of protection bought and $1 trillion notional protection sold. Thus, this dealer has $2 trillion of gross exposure, but the net amount is zero. Moreover, suppose that all the dealer's contracts have collateral agreements where the collateral changes daily as the market value of the contracts changes (a

feature called mark-to-market), so that those who are on track to lose from the trade must post collateral as these losses accumulate. Even in this case, a default of this hypothetical dealer still has the potential to create havoc in the financial markets. If a major dealer defaults, counterparties to the dealer have to replace the CDS. This process can take time and can be costly. As a result, counterparties to the defaulting dealer can be exposed to risks over some period of time, which could lead to further defaults an instability.

AIG is a complex story.

Exposure to credit default swaps did play a big role in AIG's failure;

AIG did not behave like a dealer it did not run a matched book and it did not appear to hedge significantly. What AIG did was provide credit default swaps on AAA tranches in securitizations on extremely large scale. As of June 30, 2008, it had written a net amount of $ 411 billion notional of credit derivatives on super-senior tranches of securitizations. Included among these were derivatives on super-senior tranches with subprime collateral for a notional amount of $ 55.1 billion. At the time that AIG wrote the credit protection, all the tranches were rated AAA. The probability of a default on a AAA-rated obligation is in principle extremely small, less than 0.1 percent per year. However, with the major downturn in the U.S. housing market, these tranches lost substantial value and the credit default swap liability of AIG became very large. As losses mounted and the company's credit rating dropped, AIG needed to post ever more collateral until it did not have the cash to post the collateral amounts its agreements required. Importantly, AIG could not meet its obligations not because or realized losses on its- default swaps but because of collateral arrangements that required posting of collateral because its credit rating was downgraded. But even in the case of AIG, CDS were not the only or even the primary reason for its problems, nor were its CDS the only or even the primary

reason why the firm was bailed out. AIG didn’t just write protection on subprime securitization, it also borrowed heavily to purchase these securities on its own. In fact, AIG made even larger losses on its portfolio of mortgage-related securities than on its CDS. It’s true that the danger of an AIG default on its credit default swaps was a concern to many financial institutions, which as noted before had been encouraged by regulators to purchase such protection. But many financial institutions would also have been largely protected by collateral agreements and by purchases of protection on AIG. An additional danger of an AIG default was that it would have defaulted on its debt and commercial paper at a September 2008 when there already was a run on money markets.

1.10 The principle actors of AIG failure

Joseph J. Cassano, who led AIG's Financial Products division from 2002 to 2008, was versus in the written testimony he submitted to the Financial Crisis Inquiry Commission, the panel created by Congress to investigate the roots of the worst financial crisis since the Great Depression.

Cassano's unit underwrote insurance on bonds, a type of derivative called a "credit default swap." As the housing market soured, leading to a worsening economy, financial firms that bought that insurance to either hedge their risk or to speculate demanded more and more collateral from AIG. This run on AIG, and its burgeoning accounting losses based on how they valued these securities, led to the government takeover and eventual bailout.

"I was truthful at all times about the unrealized accounting losses and did my very best to estimate them accurately"[11] .

But Cassano didn't think his firm would actually experience any losses on those securities. Rather, the firm was forced to take accounting losses by its auditors, a move that Cassano disagreed.

“As I look at the performance of some of these same CDOs in Maiden Lane III, I think there would have been few, if any, realized losses on the CDS contracts had they not been unwound in the bailout".[12]

Maiden Lane III is one of the financial vehicles created by the Federal Reserve Bank of New York to purchase the various instruments AIG insured. AIG's counterparties were paid 100 cents on the dollar.

Cassano, noting that the bailout occurred after he left his position as head of AIG-FP, said that his unit was able to negotiate with its counterparties as they stepped up their demands for increased collateral.

"During my tenure, no counterparty declared us in breach or threatened litigation, which shows our strategy was effective. I believe this strategy was appropriate and in the best interests of the company and its shareholders".

In discussing the losses AIG sustained, which led in part to the increased collateral calls, Cassano said that he disagreed with the firm's auditors' move to disallow an accounting adjustment that forced the firm to record several billions of dollars in losses.

He notes that "no one raised concerns about the negative-basis adjustment until mid-January 2008.

In February 2008, the auditors decided that they did not have sufficient audit-quality evidence for the adjustment. As a result, they disallowed it.

11 Cassano said in his remarks (Www.huffingtonpost.com/2010/06/30)

12 ibidem

Cassano disagreed with that decision, as did several others at AIG. It was the auditors' final decision.

The last decision had a huge impact on the company and it increased the unrealized accounting loss.

For example, in 2007, in the fourth quarter alone, AIG recorded $11.12 billion in pretax losses, according to a Feb. 28, 2008, filing with the Securities and Exchange Commission.

AIG continues to believe that the unrealized market valuation losses on this super senior credit default swap portfolio are not indicative of the losses AIGFP may realize over time, the firm noted at the time.

Under the terms of these credit derivatives, losses to AIG would result from the credit impairment of any bonds AIG would acquire in satisfying its swap obligations.

Based upon its most current analyses, AIG believes that any credit impairment losses realized over time by AIGFP will not be material to AIG's financial condition.

Although it is possible that realized losses could be material to AIG's results of operations for an individual reporting period.

AIG expected the accounting losses to reverse over time.

The company can be considered a symbol of the worst excesses associated with Wall Street and the reckless risks it took in the run-up to and during the crisis.

Taxpayers continue to own 79.9 percent of the firm[13].

13 Ibidem

Legenda:

"**CDS SPREAD**": The premium paid by the protection buyer to the seller, often called "spread," is quoted in basis points per annum of the contract's notional value and is usually paid quarterly. Note that these spreads are NOT the same type of concept as "yield spread" of a corporate bond to a government bond. Rather, CDS spreads are the annual price of protection quoted in bps of the notional value, and not based on any risk-free bond or any benchmark interest rates.5 Periodic premium payments allow the protection buyer to deliver the defaulted bond at par or to receive the difference of par and the bond's recovery value. Therefore, a CDS is like a put option written on a corporate bond. Like a put option, the protection buyer is protected from losses incurred by a decline in the value of the bond as a result of a credit event. Accordingly, the CDS spread can be viewed as a premium on the put option, where payment of the premium is spread over the term of the contract. For example, the 5-year credit default swap for Ford was quoted around 160 bps on April 27, 2004. This means that if you want to buy the 5-year protection for a $10 million exposure to Ford credit, you would pay 40 bps, or $40,000, every quarter as an insurance premium for the protection you receive.

"**CONTRACT SIZE AND MATURITY**": There are no limits on the size or maturity of CDS contracts. However, most contracts fall between $10 million to $20 million in notional amount. Maturity usually ranges from one to ten years, with the 5-year maturity being the most common tenor.

"**TRIGGER EVENTS**": ISDA's standard documents for CDS provide for six kinds of trigger events.6 However, market participants generally view the following three to be the most important:

· Bankruptcy

· Failure to Pay

· Restructuring

Bankruptcy, the clearest concept of all, is the reference entity's insolvency or inability to repay its debt. Failure-to-Pay occurs when the reference entity, after a certain grace period, fails to make payment of principal or interest. Restructuring refers to a change in the terms of debt obligations that are adverse to the creditors.

Restructuring is by far the most problematic of these trigger events. Accordingly, some market participants prefer to exclude the restructuring provision from a credit derivative contract altogether, or to restrict the scope of the provision.

Currently, a credit derivative contract may be entered with any one of the four options available with regard to restructuring.

"**OVER THE COUNTER MARKETS**": A decentralized market of securities not listed on an exchange where market participants trade over the telephone, facsimile or electronic network instead of a physical trading floor. There is no central exchange or meeting place for this market.

"**COLLATERAL ASSIGNEMENT**": Use of a life insurance policy to secure a loan. Should the policyholder default on the loan, the creditor could recoup the interest on the loan from the policy.

2 SOVEREIGN CDS DURING THE CRISIS

2.1 General features

CDSs for corporates and sovereigns differ an important ways that reflect differences in their default risks.

In 1937 Supreme Court decision made it difficult for federal debt USA holders to seek interest payments as damages, even in cases of default. By contrast, holders of corporate debt may be able to force a defaulting corporation into bankruptcy or may have other forms of recourse through the judicial system. A desire by government to borrow from financial markets in the future may provide a more consistent incentive for repayment. In terms of CDSs, sovereign and corporate debt restructuring may be treated differently under ISDA protocol for the purpose of determining CDS payments. This could further complicate sovereign CDS holders' efforts to compel payment.

Sovereign CDSs, which benefited from standardisation of contract form, are considered the most liquid credit derivative instruments in merging markets. Particularly as their liquidity increases, sovereign CDSs have the potential to supplement and increase efficiency in underlying sovereign bond markets[14].

The premium paid by the buyer of a CDS can be decomposed into two basic components:an expected loss, which according to available estimates tends to be relatively small and a sovereign risk premium.

Typical credit events include failure to pay,bankruptcy,restructuring, repudiation, or a moratorium or failure to make a timely interest payment.

14 Sovereigns CDS, by Frank Packer (BIS quarterly Review, december, 2003)

If a credit event occurs and if fair market value of the asset is below the par value, the resulting gap as a percentage of par value is known as the recovery rate. A credit event might occur that would leave an asset's value at or above par,implying a recovery rate of 100% in which case the CDS buyer would receive nothing. Were a credit event to occur that left such securities above par, CDS holders would receive zero payment.

For any sovereign CDS that used the standard ISDA documentation, the ISDA committee, at the request of a CDS buyer or seller, would determine whether a particular event would constitute a triggering credit event according to terms of the relevant ISDA documentation. The ISDA standard contract provides detailed definitions of what would constitute a credit event, which the ISDA committee would then apply and interpret in a given case. Those entering into such contracts generally agree to be bound by the decisions reached by this ISDA committee[15].

Usually sovereign risk is determined by looking at the difference between the interest rates on sovereign bonds of the same maturity and characteristics issued by two different countries. Thus, what is actually being measured is a differential risk[16].

Sovereign CDS serve as trading instruments rather than pure insurance instruments. Investors use sovereign CDS mainly for the following purposes:

- Taking an outright position on spreads depending on traders' expectations over a short horizon
- Hedging macro, i.e. country risk (e.g. a bank's exposure to a quasi-governmental body)

15 Congressional Research Service Report, D. Andrew Austin, Rena S. Miller- 15 August 2011.

16 Sovereigns CDS premia during the crisis and their interpretation as a mesure of risk in Banco de Espana, Economic Bulletin, april 2011.

- Relative-value trading (e.g. a short position in country X and a long position in country Y)
- Arbitrage trading (e.g. government bond vs. CDS)

A number of additional factors may influence the information content of CDS premia. First sovereign CDS volume is small[17].

Some view CDS price trends for debt as an indicator of the market's perception of the different countries government's creditworthiness.

We focus our attention on the concept of the "basis" between CDS and bonds.

Both sovereign CDS and government bonds offer investors exposure to the risk and return of sovereign debt. The basis is defined as the CDS spread minus the credit spread on a fixed-rate bond of similar maturity. In a basis trade, investors set up a default-risk free position by combining a bond position with a CDS trade in order to directly profit from potential price differences.

Differences between the market prices of bonds and CDS can provide information on the potential existence and size of arbitrage opportunities which should be very small if credit markets are functioning normally.

To exploit a negative basis an arbitrage trader has to finance the purchase of the underlying bond and buy protection in the CDS market. In this case, default risk arising from underlying entity is fully removed from the resulting position. For a positive basis a trader short-sells the underlying bond and sells CDS protection.

If the bond is cheaper than CDS, the investor should buy the bond and buy CDS protection to "lock in"a risk-free profit and vice versa[18]

17 European Central Bank -An Analysis of Euro area sovereign CDS and their relation with government bonds by Alessandro Fontana and Martin Scheicher, December 2010.

18 See footnote n.17

CDS>Bond Spread ('*positive Basis*')	*CDS< Bond Spread* (*'negative Basis'*)
Strategy : Sell CDS protection and bond	Buy CDS protection and bond
Observed for: Most sovereign	Corporates since crisis

2.2 The Crisis

In current global crisis two phases emerged.

The first one is about money market crisis when confidence between banks led to deep changes in the principles and techniques of central bank monetary policies.

The second phase concerns the crisis of public finances and public debt, which appears later and was largely cumulative result of massive fiscal stimulus taken at the outset and designed to help banking sector and to compensate for the ineffectiveness of monetary measures.

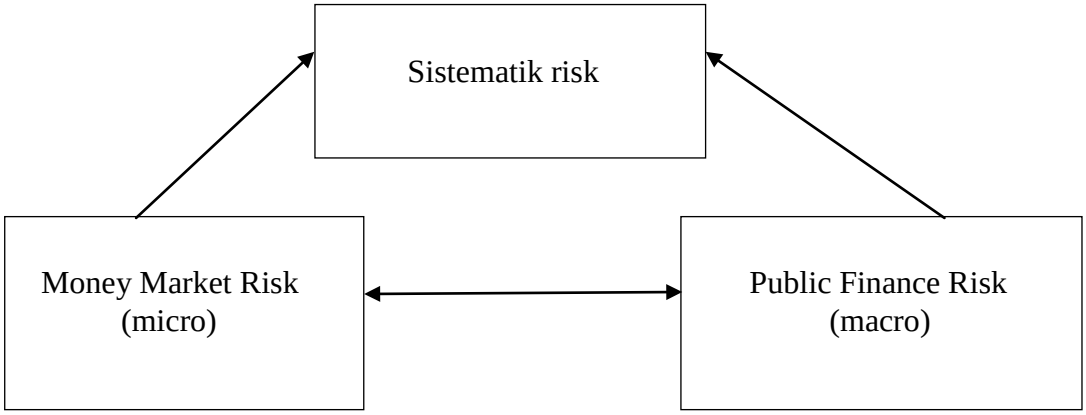
Short-term interest rates were of particular importance because they reflect not only changes in short-term liquidity of the banking sector, but also confidence in the banking system as a whole.

As to the second phase of the crisis, the attention of investors, bankers and politicians was focused on different indicators for fiscal risks including spreads of CDS. When the interest spreads in the interbank market, showing the state of confidence in the banking system and micro-level risks, CDS is an indicator for the confidence into the sustainability of fiscal and debt policy, i.e. macro-risks.

We focus our attention on the impact of fiscal risks.

The impact of fiscal risks on the money market is going through changes in bank balance sheets, where sovereign securities are presented.

The government is the guarantee of the stability of the banking sector so any disturbance, from money market interest rates to fiscal imbalances, implies more expensive resources, which create an accumulation of costs for the budget and finally worsen the solvency of governments[19].



At the beginning (before the crisis) CDS market was flourish and settled.

When Lehman's Brothers defaults, due to the lack of liquidity and collaterals problems, an inversion of trend in CDS market took place and the CDS premia increased drastically.

Basic reasons stood beside the changing of the behaviour of the CDS seemed to depend on common factors[20].

Until the end of 2009 one of the common factor was about the sovereign debt problems of different countries to which level adversion to the global

19 Money Market Integration and Sovereign CDS Spreads Dynamics in the New Eu States in The William Davidson Institute working paper N. 1002 , October 2010.

20 The Janus-Headed Salvation: Sovereign and Bank Credit Risk Premia during 2008-09 by Jacob W. Ejsing, Wolfgang Lemke.

risk (the implied volatility indicator of the SP500 index is known as VIX) and the idiosyncratic component of each Country were added.
Because of the CDS's increasing premia the market trade reduced considerably. On another side the arbitrage opportunity didn't take place during the most turbulent period of the financial crisis thanks to the “flight to liquidity” which caused the decline of the appetite to risk for investors so the arbitrage traders decreased sharply.

2.3 CDS Market in Europe

In the beginning of 2008, the financial crisis had already brought euro-area corporate bond spreads and respective CDS premia to highly elevated levels. Unlike the corporate spreads, their sovereign counterparts, referring to bonds issued by euro-area governments, had first remained fairly tight.
Sovereign bond spreads shared a distinct movement. Such movement is meaningful since with the thread of intensifying macroeconomic repercussions both the corporate sector (decreasing profit expectaction, rising risk of default) and the public sector (decreasing tax revenues, higher fiscal deficits and, ultimately, the threat of sovereign default) became increasingly distressed. An additional driving force affecting bond spreads from both groups of issuers is given by investors' risk aversion.
The degree of the movement by measuring the proportion of variation in corporate and sovereign CDS premia that can be explained by a common factor. This factor is intended “ the common risk factor”[21].

21 See Note n. 20.

In general the relation between sovereign CDS and bond spreads has changed and exhibits different patterns across euro area countries over the period from Lehman collapse to November 2010.

The basis, which is calculated as the difference between the CDS value and the Bond Spread (CDS - Bond Spread) documents the following two facts.

We are going to concentrate these effects in these countries:Germany, France, Portugal, Ireland and Greece.

First, for Germany and France, since the beginning of the crisis, the sovereign CDS premia have become larger than the underlying government bond spreads meaning that the basis has changed from zero and has become persistently positive. In principle, sovereign CDS and government bonds offer investors exposure to the risk and return of sovereign debt.

In a basis trade, investors start with a default-risk free position by combining a bond position with a CDS trade in order to directly profit from potential price differences, the basis should be approximately zero. CDS premium and bond yield spreads might not be equal for reason as trading costs, counterparty risk in the CDS market or market frictions. Among these factors, market liquidity and funding liquidity play a key role. In fact, while the CDS is a derivative contract, the bond is a cash instrument and its yield is influenced by the presence of a “premium for liquidity”. In period of market distress, a higher demand for government bonds which are perceived as safe instrument which leads the liquidity premium and CDS premia constant and the basis higher, respectively.

Second, for countries for which there have been solvency problems (Greece, Ireland and Portugal) the basis show several variations.

In these circumstances, deterioration of bond market liquidity has driven bond spreads larger with respect to the CDS premia. The dramatic increase of the basis for Greece and Portugal in May 2010 coincides with two policy

announcements: EU finance ministers launched the European Financial Stability aiming at preserving financial stability by providing assistance to euro area States in difficulty, while the ECB announced interventions in bond markets segments which were not functional.

The increase in the cost of sovereign borrowing coincides with a simultaneous increase in trading of sovereign CDS.

Since September 2008, bond price was determined in relatively liquid government bond markets such as Austria, Belgium, France, Germany and Netherlands. CDS price was determined in government bond markets that have had serious problems of liquidity such as Greece, Ireland, Italy, Portugal and Spain.

In normal times the CDS-bond basis is expected to be close to zero, this is not the case in times of financial crisis.

During recent crisis, the euro area is characterised by episodes of both "flights of liquidity" and deterioration of liquidity in sovereign bonds markets.

The crisis has led to a widespread discussion on the costs and benefits of CDS. Many were convinced that CDS contracts are responsible for increasing the borrowing costs of sovereign issuers for which there are solvency problems.

CDS premia are generally more reactive, then bond spreads, to shocks and they tend to forecast future upward movement of bond spreads.

Traders find it easier to profit from their information into the derivatives market, which is consistent with the fact that, for countries for which there have been solvency problems such as Greece, Ireland, Italy, Portugal and Spain, CDS lead bonds, in the pricing process.

After the collapse of Lehman, periods in which the basis exhibit temporary sharp positive spikes, are generally followed by longer periods in which the basis is negative.

The dramatic increase of the basis around the 10 of May 2010 coincides with the ECB interventions in bond markets under the Securities Markets Programme. These actions have been started up by a dramatic deterioration of liquidity in the government bond market in the end of April 2010.

As it appears clearly these measures have had only a temporary effect of lowering bond spreads. In fact, what happens is that, CDS and bond spreads quickly overturn to their upward trend but, in July 2010, the basis has shifted into negative territory.

In a situation in which the basis is negative, the existence of CDS contracts allows traders to profit from buying the bond, via repurchase agreement and buying protection ("negative basis trade"). Hence, given the existence of CDS, market forces, would act in favour of purchasing bonds lowering spreads. This goes against the argument that CDS increases the cost of borrowing cash. Although, being the bond spread larger than the CDS it can be seen as a sort of upper bound for credit risk price, while CDS as a lower bound[22].

The sum of the common factor and the factor linked to global risk aversion explains most CDS behaviour until the outbreak of the European sovereign crisis.

After the shocks in Europe, and as risk aversion in the global markets decreased, it became possible to classify countries in two categories.

First, those where the common component and that associated with risk aversion continue to explain most of the behaviour of the premium, and,

22 The Euro area sovereign CDS Bonds basis during the 2008/10 financial crisis by A. Fontana 22 Nov 2010.

second, those economies where the repulsive component represents the largest portion of the premium, which coincide with the cases in which investors perceived greater vulnerability.

In any event, the danger infection may also indicate the existence of possible vulnerabilities which would have to be protected in order to reduce the sovereign risk premium[23].

During January 2008 to mid-October 2008 CDS premia displayed a common trend, probably reflecting a deteriorating macroeconomic outlook and increasing investor risk aversion. This common factor not only explained the bulk of variation in bank but also the sovereign CDS premia.

Between end-September 2008 and mid-October 2008 after the L.B. collapse, various euro area governments announced that they would engage in large-scale financial rescue packages.

The support for banks came in the form of government guarantees for lending in the interbank market or for newly issued bank debt.

These measures most notably brought about the risk of deficit increases in the future. For instance, government guarantees constitute unexpected liabilities and they rely on an impact on future deficits depends both on their size and the fraction of these guarantees that is expected to be called.

Overall, financial market participants perceived the packages as a 'risk transfer' from the financial sector to governments, which was reflected in the CDS of the former going up and the latter going down.

Besides this level effect of increasing sovereign CDS premia immediately after the introduction of rescue packages, these measures also took about a slope effect, i.e. a change in sensitivity to potential future aggravations of the crisis.

We give the interpretation of the common risk factor in some more detail.

23 See Note n. 16

The question we ask is whether and by how much the sensitivity of sovereign and bank CDS premia to aggravations of the crisis has changed after the introduction of financial rescue packages.

If the results are driven by the fact that the speed, at which the crisis was explained, has itself picked up considerably after September.

However, what we are exploring here is the increase of our sovereign and bank CDSs relative to that factor.

In other words, the measure of the common risk factor, taken as the iTraxx non- financial index should rather be interpreted to act as a relative to which the risk sensitivities of the two types of CDS premia (sovereign issuers and financial corporations) are measured.

Sovereign CDS's risk exposure was fairly constant until September 2008. During early October, however, when governmental rescue packages were announced, their crisis sensitivity nearly five times more and stayed around this level until mid-March 2009.

For mid-March to May 2009, the estimation identifies a period of further increases in risk sensitivity.

During a period of improved market sentiment and overall declining risk aversion, sovereign CDS premia showed a faster decrease than their corporate counterparts.

After the announcement of rescue packages, the sensitivity of sovereign CDS premia to changes in the common risk factor has stayed around higher levels than up to September 2008.

From a standard Merton-type bond pricing model, we can deduce that: as the governments' (contingent) liabilities increased, the sensitivity of their bond risk premia face to face to the common risk factor was increasing[24].

24 See Note n. 20

2.4 Resume of EU site

Heavier sovereign CDS trading in recent months among Euro zone and other developed countries reflects several distinct tensions.

The introduction of the euro stems from a broader EU aim to develop deeper and wider ties on several levels among European countries. Eurozone countries share a common monetary policy controlled by the European Central Bank (ECB).

The Stability and Growth Pact (SGP), as part of the 1992 Maastricht Treaty, has the aim to ensure that expansionary fiscal policies of member states would not undermine macroeconomic stability of the Eurozone and the EU. According to SGP rules, member states running government deficits above 3% of gross domestic product (GDP) and public debt levels above 60% of GDP are subject to the “excessive deficit procedure” (EDP), i.e. penalty provisions.

The 2007-2008 financial crisis also strongly affected public finances of many advanced economies. Some countries guaranteed bank deposits and other liabilities of the financial sector.

The ensuing economic downturn strongly affected economies of most developed countries. On average, EU government ran deficits of under 1% of GDP in 2007.

In 2010, those deficits were expected on average to reach over 7% of GDP.

Concerns about the sustainability of the fiscal situations of Greece, Ireland, and Portugal have been substained by high levels of public debt and weak prospects for economic growth. These countries are currently receiving financial support from other Eurozone countries and the International Monetary Fund (IMF) to avoid defaulting on their debt. Those economies, however, are small relative to the Eurozone as a whole. A wider concern is

that an uncontained sovereign debt crisis in one of those countries could trigger fiscal contagion, leading to larger challenges for EU policymakers.

2.5 CDS Market in U.S.A.

Concerns about developed-country sovereign default risks have grown in the period after the 2007-2008 financial crisis and have intensified in the past year as some Eurozone countries have been facing several fiscal pressures. A sovereign default occurs when a sovereign government is unable to meet its financial obligations.

Although U.S. Treasury securities, have long been considered risk-free assets, the magnitude and the size of federal deficits and the projected imbalance between federal revenues and outlays has raised concerns among some, including the rating agency Standard & Poor's (S&P), which downgraded the U.S. sovereign credit rating from AAA to AA+ on August 5, 2011. S&P also cited as a factor "political brinksmanship" in debt ceiling negotiations, which expected the United States' default on some of its obligations if the debt limit were not raised before Treasury's projected deadline of August 2.

Prices for Treasuries suggest that financial markets continue to consider federal debt instruments a safe haven despite the S&P downgrade.

Continued concerns about rising federal debt and the ability of policymakers to reach solutions to fiscal challenges could raise borrowing costs and negatively affect capital markets.

Many believe that risks were underestimated before the 2007-2008 financial crisis. Some macroeconomists spoke of a "Great Moderation," reflected in reduced volatility of real economic output, which was seen to have resulted from improved monetary policy, more flexible labor markets,

renewed economic growth, and greater sophistication of financial markets. In hindsight, many financial risks appear to have been underappreciated. More recent analysis and commentary has put greater emphasis on managing and understanding risks.

Financial analysts use many indicators to evaluate various risks associated with holding government securities.

Some risks, such as interest rate risks, are generated by wider market trends. Sovereign default risks may depend on macroeconomic conditions, spending and revenue policies, as well as political and international factors. Some analysts use market prices for derivative financial instruments known as credit default swaps (CDSs) to track sovereign default risks.

2.6 Naked CDSs

An investor can buy a CDS without owning or ever having owned or borrowed debt of the reference entity. That is, the owner of a CDS will be eligible for compensation if a credit event occurs, even if he or she realized no actual loss. An investor holding a CDS while not owning or borrowing the underlying bond is often said to possess a “naked CDS.”

For example, an investor might buy a CDS on a foreign bank’s debt in order to hedge against wider financial risks in the bank’s home country or region. Issues related to naked CDSs are similar to issues raised by short selling of assets. A short seller contracts to sell an asset at a future date, typically in expectation of a fall in the asset’s price.

If the price does fall, the short seller can then fulfil the contact by buying the asset at a reduced price, thus collecting a profit. Opponents of such naked CDSs charge that heavy buying of CDS protection, without owning

an underlying bond, may contribute to credit-related market panics by triggering market perceptions that an entity is uncreditworthy.

They contend that short selling and related transactions may restrict credit available to affected issuers or raise borrowing costs.

Others counter that trading in such naked CDSs simply allows traders to arrive at prices for credit protection that better reflect the actual credit risks for the reference entity. Some contend that CDS prices make differences in risk more transparent, which may increase borrowing costs for entities perceived to pose greater default risks, but may give investors a way to hedge against those risks.

2.7 SEC and European Restrictions on Short-Selling and Naked CDSs

Some lawmakers in the United States and European Union (EU) have questioned whether widespread trading of naked CDSs could destabilize the market for a country's debt, particularly for certain sovereign debt under distress, such as that of Greece; or whether naked CDS trades might create destabilizing effects in other markets as well.

On July 4, 2011, the European Parliament discussed restrictions on CDSs and short selling.

On July 5, the European Parliament voted to adopt a report calling for short-selling restrictions, but a final vote was postponed to allow time for negotiation with the Council of the European Union, which represents governments of member states.

On August 11, 2011, France, Italy, Spain, and Belgium adopted temporary restrictions on short selling of financial stocks.

On the same day, regulators in Turkey reportedly raised margin requirements on short selling.

Greece imposed short sale restrictions on August 8.

Several other European governments have imposed reporting and other requirements on short selling, naked CDS holdings, and related transactions.

At present, short selling and naked CDSs are legal under federal law, although certain short selling restrictions on financial institutions were temporarily imposed in 2008.

U.S. Securities and Exchange Commission (SEC) banned stock short sales securities of mortgage guarantors Fannie Mae, Freddie Mac, and primary dealers at commercial and investment banks from July 21 through July 29, 2008. SEC also banned short selling for stocks in 799 financial institutions between September 19, 2008, and October 3, 2008.

2.8 How Does the U.S. Sovereign CDS Market Work?

When a buyer purchases CDS protection on U.S. Treasury securities (often termed “Treasuries”), the seller of the CDS, in exchange for a stream of payments, essentially agrees to pay the CDS buyer in case of a credit event that affects U.S. Treasury securities.

For many years, U.S. Treasury securities have been considered assets basically free of default risks. The emergence of a market in credit default swaps for U.S. government securities, and the growth in volume for this market in 2011, suggests that some investors believed a small but non-zero default risk exists. Investor problems became more acute during the latter stages of the 2011 debt limit discussions.

2.9 The Market for U.S. CDSs is poor

The CDS market for U.S. Treasuries, however, is relatively small and illiquid. A relatively small number of CDS contracts, according to available data, trade on U.S. sovereign debt, compared to the amount of U.S. debt issued.

For most reference entities, however, the number of CDS contracts traded in a typical week is less than 50. Similarly, for most reference entities the gross notional value of CDS contracts traded in a typical week is less than $250 million. For a few reference entities, however, gross notional value traded may be much higher.

The number of CDS outstanding contracts on U.S. debt is small compared to some other sovereigns, such as Italy and Portugal.

By contrast, on that date the total federal debt held by the public was $9.75 trillion—an amount roughly 2000 times that of the associated U.S. CDS market.

Unlike certain financial asset markets, no trader in CDS markets has market-maker responsibilities. In certain markets, designated traders known as market makers are obligated to post buy and sell prices for a specific stock or contract. The lack of a market maker in a thinly traded market such as U.S. CDSs may reduce liquidity. Thus, finding buyers and sellers for U.S. CDSs at reported prices could be harder than in more liquid derivatives markets.

The lack of liquidity in this market means that some financial institutions may be reluctant to offer U.S. CDSs because of the small size of that market and the analytic challenges in estimating the probabilities of a credit event affecting Treasury securities.

In such a market, buyers who wish to purchase U.S. CDSs may pay a premium reflecting the costs of offering low-volume contracts.

If so, calculations of the probability of a credit event affecting Treasury securities based on U.S. CDS prices are likely to be imprecise.

Moreover, investors holding U.S. CDSs could have different business models than investors holding sovereign CDSs that trade more widely, which could complicate imputations of relative risk.

Supply of U.S. CDSs is limited because U.S. banks or banks with strong ties to U.S. financial markets might not be credible counterparties in the event of a major credit event.

If a serious Treasury default occurs, major U.S. banks could face severe deterioration in their capital bases, leaving their ability to make CDS payments in doubt. Thus, counterparty risk may make many U.S. banks less attractive suppliers of U.S. CDSs.

Banks face capital regulations that may encourage purchase of CDSs for other types of assets, but those regulations provide little incentive to buy CDSs on U.S. Treasuries.

Large banks subject to Basel II regulations face capital requirements that include risk-based adjustments to asset holdings.

Bank regulators also evaluate the riskiness of asset holdings when evaluating the adequacy of a bank’s capital.

In general, holdings of riskier assets are given less weight in the calculation of a bank’s capital reserves. During the run-up in housing prices from about 2000 to 2007, some banks met regulatory capital requirements by purchasing CDS protection on their mortgage-backed securities (MBS) and other assets.

Basel II, however, puts a 0% standard risk weight on banks' holdings of debt issued by domestic and foreign sovereigns with credit ratings of AA- or higher.

Because Treasury debt is sufficiently highly rated, purchasing CDS protection on Treasuries would not help banks meet minimum capital requirements.

2.10 U.S. CDSs Versus Other Sovereign CDSs

Volumes of outstanding contracts and trading activity for U.S. CDSs are limited in comparison with CDS markets for several Euro zone countries. CDS markets have been more active for sovereigns such as Greece, Ireland, and Portugal, which have been facing investor concerns over potential defaults or restructurings; and for the larger countries Spain and Italy, reflecting concerns that Eurozone fiscal pressures could spread.

CDS markets on emerging market (EM) government debt has typically been more active than CDS markets for governments of developed countries. The CDS market on U.S. CDSs, as noted above, is illiquid and thinly traded.

2.11 Are the United States different?

Significant differences appear to exist in the market for U.S. CDSs compared with that of Greece and other EU countries under severe fiscal pressure, even if some long-term challenges are similar.

The U.S. dollar's status as an international reserve currency implies that the U.S. government can earn additional seignorage, a privilege that

policymakers may wish to protect. Seignorage is earned on the difference between a currency's production cost and its circulating value.

U.S. debt is also denominated in dollars, the supply of which is controlled by the U.S. government. This might, in theory, provides a short-run incentive for monetary policies that would lead to higher inflation rates, thus reducing the real value of the debt.

On the other hand, many government expenses would rise with inflation, and the financial weight of past accumulations of debt have been projected to be smaller than the costs of future entitlement payments.

2.12 The Debt Limit and Long Term Fiscal Challenges

President Obama signed the Budget Control Act of 2011 (S. 365; P.L. 112-25) on August 2, 2011, which included provisions to raise the debt limit and reduce deficits. It suggests that market concerns were focused on debt limit constraints facing the U.S. Treasury.

The consequences of not raising the debt limit before that point, according to some financial analysts, could be severe. Debt limit concerns appear to have decreased demand for longer-maturity Treasury securities and increased demand for shorter-term securities financial institutions take steps to ensure liquidity. While U.S. CDS prices rose to a record high before passage of the act.

After the Budget Control Act was enacted, U.S. CDSs fell to previous levels.

Prices for Treasuries suggest that financial markets continue to consider federal debt instruments a safe haven despite the S&P downgrade.

Treasury price trends shortly after enactment of the Budget Control Act suggested an releasing of liquidity positions anticipated, leading to a slight

increase in yields on shorter maturity Treasuries, while longer maturity Treasury yields fell, perhaps reflecting renewed concerns about economic growth and events in the Eurozone.

While passage of the Budget Control Act eased concerns about the U.S. Treasury's ability to meet federal financial obligations for the time being, market participants remain concerned about longer-term fiscal challenges facing the U.S. government, even if the relevant horizon for those issues extends well beyond the window of a five-year CDS contract.

The Congressional Budget Office (CBO), the Government Accountability Office (GAO), the IMF, and others consider the federal government's current fiscal path unsustainable.

Moreover, the tenor of the debt limit discussions raised additional concerns among credit rating agencies, among others. Protection of the federal government's full trust and credit in the long term, according to most public finance experts, requires measures to bring the ways of spending and revenues into line with each other[25].

25 See note n. 16.

Figure 1.

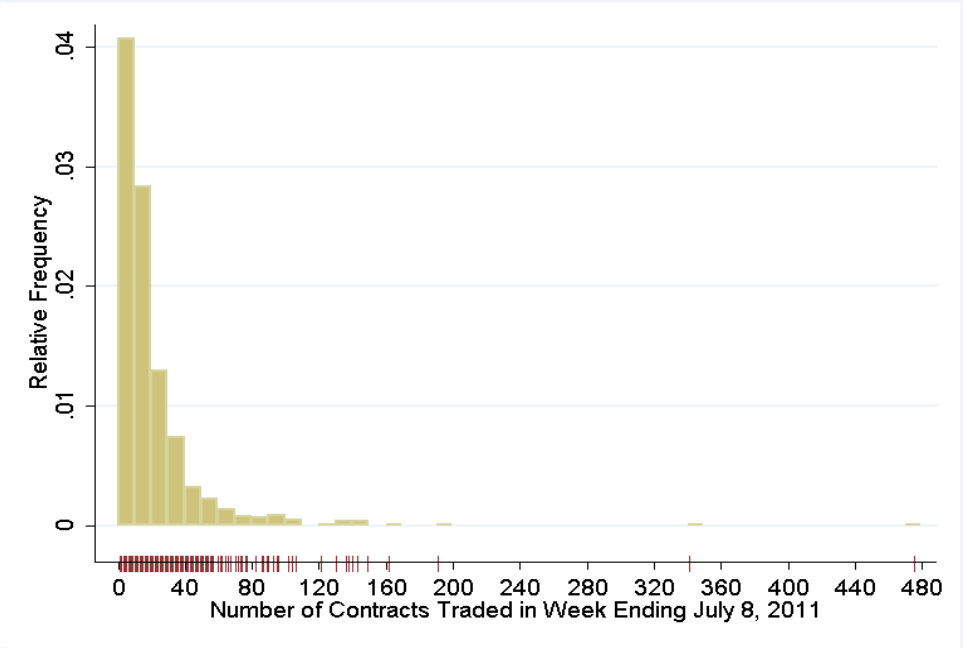
U.S. Credit Default Swap Price and Volume Trends

November 2008-June 2011nues into line with each other.

Source: *Economist*, June 23, 2011, based on Market and DTCC data.

Figure 2. Distribution of CDS Trading Volumes

Trades on Single Reference Entities As Reported to DTCC



Source: CRS, based on analysis of DTCC data.

Figure 3.

Distribution of Gross Notional Value ($ Equivalent, billions)

Trading on Single Name Reference Entities As Reported to DTCC

Source: CRS, based on DTCC data.

Notes: Width of histogram bars is $250 million. Each short vertical line under histogram represents one reference entity.

Table 1.

Outstanding Sovereign CDS for Week Ended July 8, 2011

Countries with Net Notional Value Above $3 Billion Equivalent

Country	Gross Notional[a]	Net Notional[a]	Outstanding Contracts
Italy	292.0	23.8	8336
France	96.7	20.4	4636
Spain	168.2	18.9	8021
Brazil	176.3	16.9	11783
Germany	95.6	16.4	2992
United Kingdom	64.1	11.9	4587
Mexico	122.8	8.9	9707
Japan	51.8	8.6	5340
China (PRC)	47.5	7.4	4833
Belgium	53.8	7.4	2862

Portugal	67.0	6.1	3604
Austria	51.0	6.1	2115
Turkey	146.5	6.1	9173
Greece	79.1	4.7	4636
United States	25.6	4.6	1004
Russia	106.1	4.5	7616
Australia	21.2	4.4	1846
Ireland	42.3	4.3	2522
South Korea	56.3	4.3	6260
Hungary	70.2	3.4	5825
Indonesia	36.8	3.1	4635
Sweden	18.8	3.0	1038
Philippines	57.0	3.0	6228

Source: DTCC.

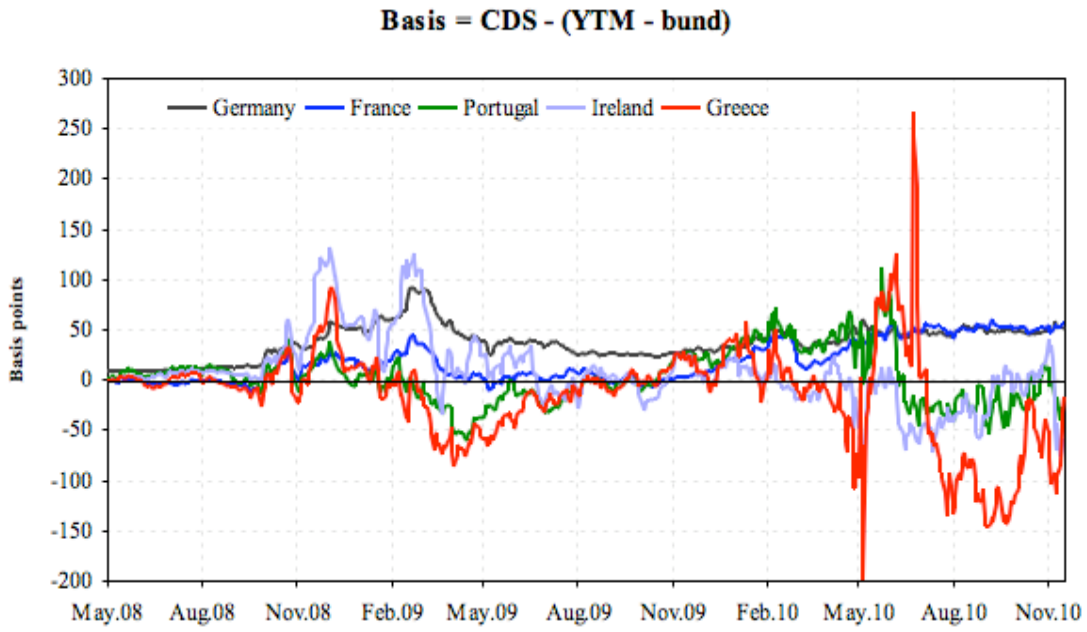
Notes: This table ranks the largest sovereign CDS markets, as determined by net notional value, for the week ended July 8, 2011. The U.S. ranked 15th, just after Greece, for that week, according to data reported to DTCC repository. Notional value represents the face value of bonds on which credit protection is bought or sold.

a. Values in billions of U.S. dollar equivalents.

FIGURE 4

CDS-bond basis (=CDS-bond spread) of selected euro area countries. The chart shows the daily CDS-bond basis expressed in basis points, in the period that goes from May 2008 to 22 November 2010. The CDS and the underlying benchmark government bond have a maturity of 10 years.

The bond spread is calculated over the 10 year German bund.



Source: Bloomberg and Fontana calculations.

Notes: Premia on five-year CDS on senior bonds issued by sovereigns or banks. Scale is on left-hand side.

3 CREDIT DEFAULT SWAPS Pro and Cons

3.1 Introduction

In previous chapters the analysis was about the description of Credit default swaps market and how much they could have contributed in playing a fundamental role in the financial crisis.

Now we are going to focus our attention on the spread different pro and cons opinions about the usage of CDS in the financial market.

3.2 Pro Credit Default Swaps

Between supporters, the most convinced are Peter J. Wallison, Luigi Zingales and Oliver Hart.

We start explaining Peter J. Wallison' opinion, who is the Arthur F. Burns fellow in Financial Policy Studies at the American Enterprise Institute in Washington.

He is extremely persuaded that crisis was not caused by the use of CDS and they are not responsible of the “domino effect” like all the rest of the economists sustained. In particular way Wallison said that there is no correspondence between Lehman's Brothers and AIG defaults.

There is no indication that the Lehman failure caused any systemic risk arising out of its CDS obligations either as one of the major CDS dealers or as a failed company on which $72 billion in notional CDSs had been written.

The fact that AIG was rescued almost immediately after Lehman's failure, because AIG had written a lot of CDS protection on Lehman and had to collapse for that reason.

When the DTCC Lehman settlement was completed, however, AIG had to pay only $6.2 million on its Lehman exposure.

AIG's exposure was not due to Lehman's failure but rather the result of the use of a credit model that failed to take account of all the risks the firm was taking. Wrong credit evaluation on mortgage-backed securities (MBS) and collateralized debt obligations (CDOs) have also been the cause of huge losses to commercial and investment banks.

But there is no difference between making a loan (or buying a portfolio of MBS) and writing protection on any of these assets through a CDS.

Faulty credit evaluation in either case will result in losses.

When the markets are in panic mode, every investor and counterparty is in danger, because the first counterparty will get the money in full while the latecomers will suffer losses. The failure of a large company can be responsible for a decline in quality; in a ordinary market, there would be not a claim. After the Lehman bankruptcy, the markets froze, and banks stopped lending to one another. In these circumstances, the rescue of AIG was inevitable, in fact the Fed's statement tried to explain what it could happened if AIG fail, although Fed didn't mention CDSs or other derivatives as the reason for its actions.

The Board determined that, in current circumstances, a disorderly failure of AIG could lead to substantially higher borrowing costs, reducing household wealth, and materially weaker economic performance, increasing market weakness. Indeed, the situation described above happened when the Reserve Fund, a money market mutual fund, allowed the value of a share to fall below one dollar. The fund had apparently invested heavily in Lehman commercial paper and thus suffered a loss that the manager could not cover. Treasury moved immediately to guarantee the value of money market fund shares, taken fright that the Reserve Fund's losses would affect all money market funds.

Financial regulators have few resources that will materially reduce risk-taking. They can suggest to accumulate more capital, in order to contain losses. They also try to give regulations for safety towards banks, security firms and insurance companies.

The current credit crunch is testimony to the ineffectiveness of regulation, in fact the banking sector is riddled with bad investments and resulting

losses. In this context we need a new regulatory process, which should now promote risk-management innovations, especially the derivative instruments that have greater potential to control risk.

CDSs are one of these instruments, but not the only one. A simple example of risk-shifting is the interest rate swap, which like the CDS, was developed by financial intermediaries looking for ways to manage risk.

The documentation for interest rate swaps, as well as for CDSs, was developed by the International Swaps and Derivatives Association (ISDA).

The interest rate swap is a classic example of a private-sector mechanism for risk management that could not have been developed or implemented by a regulatory agency. It is also a good way to think about CDSs, which have risk-management characteristics much like interest rate swaps.

One of the objectives of risk management is diversification, but even better is holding uncorrelated assets, that is, assets that do not rise or fall in value at the same time.

If assets are negatively correlated, it is still better, in fact when the value of one asset rises the others are falling.

For example, a bank would like to hold loans to both an auto manufacturer and an oil company; as oil prices rise, the auto manufacturer becomes weaker but the oil company becomes stronger.

The bank's risks are balanced.

Using this strategy, bank would like to divest some of its oil industry exposure and instead balance its portfolio with exposure to the risk of auto sales. The bank enters a swap with an intermediary CDS dealer in which the dealer promises to reimburse the bank if the oil field services company defaults. The dealer must now find a hedge in the form of a company that is willing to sell protection on the oil services company.

A logical protection seller might be an insurance company. The insurance company has substantial outstanding loans on commercial real estate.

Through this transaction, the bank has reduced or eliminated the credit risk of a loan to the oil industry, but the loan remains on its books and it keeps the oil company's stream of interest and principal payments, as well as its commercial relationship with this client. Now the bank enters another CDS, this time with a hedge fund, in which the bank promises to indemnify the fund against losses on a portfolio of loans to auto dealers.

For this protection, the hedge fund makes a monthly payment to the bank. After these two transactions, the bank has somewhat diversified and balanced its portfolio by substituting the credit risk of a portfolio of auto loans for an oil industry loan. Because the portfolio of auto loans may be negatively correlated with the oil industry risks, the bank's portfolio is now likely to be more stable. The insurance company has done the same.

Once again, a derivative has operated as an effective risk management tool, reducing the credit risk profile of two financial intermediaries.

Interest rate spreads and stock prices are not as valuable because they are influenced by many factors other than risk-taking and creditworthiness.

If properly used, the data on CDS spreads for reference entities can alert regulators to problems at individual banks, securities firms, or insurance companies. Even more important, it can assist investors and creditors in exerting market discipline over financial institutions the growth of CDS's provides for the first time a market based credit assessment available to all institutional lenders and bond buyers.

At a time when the value of rating agencies is being questioned, the CDS market offers critical new information to use in credit assessment.

One of the most striking element associated with credit default swap is the notional amount outstanding at anyone time.

As a measure of the growth of CDS's, the aggregate notional amount is a measure of the risk in the market.

The DTCC recently began publishing data on CDSs from its Trade Information Warehouse, which gathers about 90% of all CDS transactions. The DTCC's data eliminate the multiple counting in each swap transaction and they conclude that CDSs outstanding was $25.6 trillion, what they call the "gross notional amount".

This amount is many times the actual potential loss on all CDSs outstanding at any time because the protection sold must be reduced by the protection bought.

The result is called the net notional amount and has been estimated at 10% of the gross notional amount in the market.

Using DTCC data we can estimate that the net notional amount is about $2,5 trillion(a total of $2,75 trillion with the additional 10% not reported by the DTCC).

These are not small numbers but they are far less than the number used to describe the total risk in the CDS market.

And even these numbers are only real if every reference entity were to default end if sellers' recoveries after these defaults were zero.

Wallison can show that the two parties not just understand the risks they are assuming but they can even control them.

In fact there are always lenders who lose money because they do not understand the risk they are assuming, and there are undoubtedly writers of CDS protection who also do not understand the credit risk to which they are exposed.

A CDS risk is not different from the risk on loan. In fact, almost all swaps are negotiated through dealers, who serve as the actual counterparties. To

remain in business, they must be sure of the quality of the counterparties they choose. As a consequence, 63% of all CDSs are collateralized.

The parties that are paying for protection want to make sure the money is there when they need it. A protection buyer and a protection seller may have obligations to post collateral if the spread on a particular reference entity rises or falls.

The AIG case, in this context, is a good example, in fact its counterparties generally agreed that AIG would not be required to post collateral because it was rated AAA, but when it was downgraded by the rating agencies, it was immediately required by its swap agreements to post collateral. In addition, AIG had written a lot of protection on MBS and CDO portfolios, and, as these declined in value, it was again required by its counterparties to post collateral to cover its increased exposure. When AIG could not do so it was threatened with bankruptcy.

The rescue of AIG, had nothing to do with Lehman's failure, but it did have a lot to do with AIG's failure to assess risks of MBS and CDOs.

In this situation also banks failed because they did not assess properly the risk of these assets.

Apparently, AIG relied excessively on a credit risk model that did not adequately account for both the decline in the mortgage market or a downgrade of AIG's credit rating.

AIG, like many banks, misjudged the riskiness of a portfolio of MBSs and CDOs. That does not mean that CDSs are any riskier than loans; if AIG would have sold protection or bought various portfolios of MBSs and CDOs, these instrument would have been in default in both cases.

But the fact that it sold protection on these instruments through CDSs has caused commentators to see the issue as a problem created by the swaps rather than as a simple example of poor credit assessment.

Shortly after its initial investment, in order to eliminate the constant calls for more collateral, the Fed purchased the portfolios of MBSs and CDOs on which AIG had written protection.

If AIG had not covered this liability, the banks would have taken these losses. This illustrates another central point about CDSs: one institution's loss is another's gain. The risk was already in the market.

It was created when some bank or investment bank borrowed the funds necessary for assembling a portfolio of MBSs or CDOs. The fact that AIG was the final counterparty and suffered the loss means that someone else did not. Ultimately, there is only one real risk, represented by the original loan or purchase transaction. CDSs, to the extent that they are initiated by parties that are actually exposed to a risk, merely transfer that risk, for a price, to someone else[26].

3.3 Luigi Zingales & Oliver Hart

L. Zingales and O. Hart have studied a mechanism using the price of CDS called “timely market-based signal” which can warn the holders of junior long-term debt that the equity buffers are thin.

They started the analysis explaining when a major crisis comes it is impossible to stop the politicians from intervening.

Part of the reason is that during a banking crisis a government intervention can actually create value. Politicians find it difficult not to intervene even in situations where they destroy value; this beneficial intervention has

26 Everything you wanted to know about CDS: but were never told. Summer 2009 by Peter J. Wallison.

perverse incentive effects. For this reason, we need to introduce mechanisms to minimize the damage that this incentive will create in the system. Whenever there is the possibility of bankruptcy, there are two effects on competitors.

One is a substitution effect: When General Motors goes under, Ford celebrates because it can grab a larger market share, so that is beneficial to Ford.

Then there is a sort of complementary effect: if the failure of GM brings down suppliers of GM, then this will also impact the survival of Ford, to the extent they share the same suppliers there is an information spillover: If you see GM going under, you start doubting whether the car industry is viable in the long term, and that has a negative effect on Ford as well.

For Financial institutions the complementary effect is much bigger. When Citigroup goes under the probability that other banks will go under at the same time is very large.

We can afford to live without Citigroup, we cannot afford to live without a banking sector. Whether this fear is a realistic possibility or not, it is too powerful: no policymaker will take this risk when faced with a choice.

So even if it is not rational, you are going to intervene and there is some value to be created in avoiding a bank run.

When politicians want to increase the money supply to try to buy a little bit of employment today, at the cost of much higher inflation in the future so you are going to do the same into financial meltdown.

All the examples mentioned before are related to the too-big-to-fail policy.

The first thing that needs to be done to solve this problem is to find a way to recreate the proper market incentives for creditors to pay attention to risk. In a normal situation creditors limit debtors' risk taking by introducing covenants and by restricting the amount they lend.

Once the creditors know that they will be bailed out by the government they have no incentive to do so. The solution of this problem is doing a net distinction between systemic and non-systemic obligations.

In general there is no reason why long-term debt of financial institutions should be systemic. Pension funds, mutual funds, and foreign investors who hold long-run debt can absorb losses so there is no reason to bail banks out.

So the first mechanism we need is a resolution system that, while protecting in full the systemic obligations, is able to impose losses on the nonsystemic ones. Without any provision the private sector will abuse this guarantee. In order to avoid this from happening, however, Oliver Hart and Luigi Zingales have devised a market-based mechanism that will avoid any costly bailout.

This mechanism is based on two layers of protection for systemic obligations. One layer is represented by equity and one layer by a mandatory buffer of long-term junior debt. To ensure that these layers will never be fully exhausted they have thought of a mechanism that mimics the margin call system used by banks.

The equity of banks is like the collateral in a margin call. What they need to do is to devise a system that makes this margin call timely.

The system that Oliver Hart and Zingales developed, is a system that using prices of credit default swaps on debt, provides a timely market-based signal. If the holders of junior long-term debt actually can be penalized, then the price of CDSs on that debt would be a very credible signal that the equity buffer is running thin.

Regulators would then intervene and do a stress test.

To avoid the risk that when regulators perform a stress test they are too forgiving in judging the risk, Hart and Zingales require that the regulator

invest some money (in the form of junior long-term debt) in the institution when it deems to be safe.

If an institution is only facing a liquidity crisis, this investment would be enough to calm the market.

If the regulator incorrectly assess that the institution is safe when it is not, the CDS rate will go up and the regulator will be forced to intervene again, increasing the political cost of declaring it safe.

This system is very balanced. Hart and Zingales don't give too much power to regulators because they know two things: first, they will abuse it, and secondly, they will be late to the game.

For this reason they rely on a market trigger, the CDS price of an institution's junior long-term debt. When that price reaches a certain threshold, regulators should intervene (make a margin call) and wind down the failed institution.

But we need a system to penalize them if they make mistakes, the loss of their investment in junior long-term debt.

This system should apply only to very large financial institutions, and it is costly in a way to ruin a major distortion that now exists, a distortion that favors large institutions at the cost of small institutions.

Today the implicit too-big-to-fail doctrine is a subsidy to large financial institutions, with a lot of negative effects.

In particular, there is more concentration in the financial sector, which is bad for consumers and taxpayers. More institutions will have to be bailed out in the future. Moving to a market-based regulatory regime would remove the too-big-to-fail bias and reintroduce a fair marketplace[27].

27 Cato Journal vol. 30 n.3(fall 2010): A market-based regulatory policy to avoid financial crisis by Luigi Zingales, Oliver Hart.

3.4 Cons Credit Default Swaps

Market participants warned about a suggestion of European Parliament to ban on naked shorting of EU sovereign CDS which would result in increasing borrowing costs for sovereigns and corporates.

The Economic Affairs Committee of the European Parliament agreed a draft of EU regulation that proposes to ban the shorting of sovereign CDS by anyone who does not already own sovereign debt linked to that CDS, or securities whose price depends heavily on the performance of the country, such as shares in a major company.

The proposal allows equity investors to use sovereign CDS for hedging purposes, for example. But it does appear to rule out the use of sovereign CDS to hedge against risks resulting from other activities, such as contracts with state-owned companies, by parties that do not own securities relating to the sovereign's performance.

The fear that the effects of the debt crisis in Greece may migrate to other periphery nations in the Eurozone with battered registers, the European Parliament voted to back new rules that would severely restrict trading in credit default swaps (CDSs), including a ban on naked short selling.

The objective of that regulatory is to curb short selling in order to reduce speculative activity and, in turn, the speed and depth of a crash.

The proposed rules, would require traders to settle their uncovered short positions by the end of each trading day and restrict CDS purchases to owners of related government bonds that are dependent on these bonds.

The rules could impact liquidity in these markets.

When German regulator BaFin imposed a similar ban for companies operating within Germany, it extended the exemption to its naked shorting ban. This was specifically to allow companies to continue to use sovereign

CDS to hedge against contractual risk after having the oversight brought to its attention.

The reason trading strategies exist are because people see opportunities as a result of market inefficiencies incompetent national economic policy[28].

The market for sovereign CDS, they point out, is tiny in comparison to the sovereign bond market.

The Association for Financial Markets in Europe (AFME) said the European Parliament's proposals would cause "real damage" to the economy.

It impairs the ability of companies and pension funds to manage credit risk and will be potentially harmful in managing systemic risk. It will make financial markets less liquid and add uncertainty for European companies looking to hedge risk.

AFME also underlined that a previous European Commission investigation had found no evidence in that sovereign CDS has had a significant impact on sovereign debt prices.

Furthermore, the association said that it was the commission's own decision to impose new capital rules that was behind an increase in sovereign CDS activity as banks looked to buy CDS to manage the risks resulting from swap transactions with sovereign states[29].

3.5 Personal opinions

At the end of this analysis I would like to explain my personal opinion about Credit Default Swaps.

28 Futures August 2011 by Michael Mc Farlin

29web.ebscohost.com/ehost/detail

We have to distinguish the different positions concerning CDS opinions in Europe and USA.

I disagree with Europe's point of view because the EU is going to leave out of consideration in banning CDS from the derivative market, instead of suggesting the issue of a regulamentation which can discourage the speculation applying series of limits, in order to contain this illegal behavior.

In general European Council is inclined to maintain a more conservative position which discourages risk undertaking in order to protect themselves from defaulting.

At the same time EU appreciates the new stimulus from outside (European countries accepted the introduction of CDS in their market), but it is already to draw aside when the consequences of its choices put in danger stability.

On the other side USA are inclined to bet on new proposals (CDS) without caring about consequences running to no limit risk they gave the opportunity to speculators to profit and the effect determined a dangerous inexorable chain effect and financial collapse.

I don't either share USA financial approach because they rely too much on the benefits of new financial instruments, underestimating the risk.

We can define the two different financial approaches opposite extremes and in my opinion CDS didn't cause the financial crisis, but the lack of regulations and the volatility of the money market (especially in liquidityness situation determined by mortgage-backed securities) are the main collapse responsible.

In particular way CDS as financial instrument (like bonds) are based on short-selling practice a way to profit from the decline in price of a security,

such as a stock or a bond. In contrast, investors who “go long” with an investment hope the price will rise.

To profit from the stock price going down, short sellers can borrow a security and sell it, expecting that it will decrease in value so that they can buy it back at a lower price and keep the difference[30]. This practice is partially ruled but it is considered too risky because it is easy to change it into a active speculative instrument.

Notes

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10. The $72 billion figure is the amount reported by the DTCC for swaps that settled through the DTCC. The $400 billion fi gure was reported by the *Financial Times* on October 6, 2008, quoting a Citi analyst stating that “there could be $400bn of credit derivatives referenced to Lehman”(FT.com, 2008).
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