Credit Default Swaps and the Global Financial Crisis: Reframing Credit Default Swaps as Quasi-Insurance

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Credit Default Swaps coupled with asset-backed financial products were heavily traded in the years preceding the Global Financial Crisis. Intended for sophisticated investors, Credit Default Swaps prima facie are in the nature of insurance contracts, although they operate outside the scope of the regulation governing insurance. This paper adopts a lexonomic approach to take an initiative to develop a regulatory framework for Credit Default Swaps in order to prevent a similar crisis. Inter alia, one solution is to regulate Credit Default Swaps together with insurable interest and an “excess” in order to minimize moral hazard. The objective behind the excess is to discourage negligent lending.

Field of Research: Economics and Law

JEL Classification: G01, G21, K0

Key words: Credit Default Swaps, Moral Hazard, Global Financial Crisis

1. Introduction

The financial crisis which erupted in 2007 is the largest financial shock since the Great Depression (Asian Development Bank, 2009; Foster, 2010). It is undoubtedly one of the most significant economic events that took place within the last 50 years of financial history (Allen et al., 2011). It has since been identified that Credit Default Swaps (CDSs) made a significant contribution to the Global Financial Crisis (GFC). CDSs paved the way to the GFC by contributing to the root causes of the crisis while prolonging systemic instability (Saunders, 2010; Stulz, 2010; Juurikkala, 2014).\(^1\) Theoretically, CDSs result in efficient financial markets, efficient allocation of capital, transparency in pricing capital and reduction in cost of capital to firms (Angelini, 2012; Stulz, 2010). CDSs can be beneficial to the financial system, since they hedge risk and increase liquidity (Partnoy and Skeel, 2007).

Whenever a lender lends to a borrower, the lender faces a risk. That is the risk of the borrower defaulting the repayment. This risk is referred to as the credit risk. A CDS is designed to provide protection over the credit risk (Shabad, 2010; Saunders, 2010; Stulz, 2010). Through this, a CDS provides “insurance” against the default of a borrower. In other words, the CDSs provider who is a third party assumes the default risk by using the CDS. Literature argues that as a result of the risk-transferring property of CDSs in years prior to the financial crisis, lenders (especially banks) engaged in negligent lending practices (Partnoy and Skeel, 2007; Legg and Harris, 2009). Werrett (2009) pointed out that it was irresponsible lending that exacerbated the GFC in conjunction with CDSs.

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While some investors used CDSs for the purpose of hedging risk, many others started using CDSs to bet on credit worthiness of a borrower. Since insurable interest is not a criterion to gaining a CDS, there could be multiple “insurance” over bankruptcy of one entity. As a result, the total value of CDSs contacts can and did exceed the actual value of the debts of those contacts on which they were built (Posner and Weyl, 2013). In case of a credit event, the actual amount of compensation can be several times higher than the actual value of the debt instrument (Shabad, 2010; Legg and Harris, 2009). In years prior to the GFC, CDSs replaced their traditional association with bonds with Collateralized Debt Obligations (CDOs) and similar asset-backed securities (Stulz, 2010). When subprime borrowers started defaulting, CDS sellers had to pay massive amounts of compensation to protection buyers, and hence, CDS sellers went undercapitalized (Rowe, 2012). Some big institutions went bankrupt, while some (e.g. American International Group (AIG)) which were “too big to fail” were bailed out (Shabad, 2010).

Most of the research on CDSs adopted a conventional approach and thus focused on prudential regulation and disclosure requirements. For example; the need for risk management procedures (Rao, Chavali, & Gopinath, 2012), regulating shot selling (Juurikkala, 2012), monitoring outsourcing arrangements, fit and proper personal requirements (Saunders, 2010), prudent supervision (Sharma, 2013) has been discussed at length over the past half a decade. As opposed to insurance, CDSs are traded over the counter. As a result, there is not much information available to the public. Much of the post-GFC literature pay attention to these issues and come up with suggestions including a derivative register, mitigating counterpart risks (Angelini, 2012; Saunders, 2010), clearing house and central clearing requirements (Schmaltz & Thivaios, 2014). Since there is a considerable amount of work on the above areas, this paper focused on the legal mechanism behind a CDS. Firstly, the existing literature failed to address the moral hazard issue associated with CDSs that led to negligent lending practices. Existing literature addressed mostly those visible issues associated with CDSs (wagering, lack of mechanism to oversee the process, and so on) but skipped the key issue (negligent lending) that gave birth to most of the causes. Secondly, the existing literature did not pay adequate attention to risk concentration on the protection seller as well as protection seller’s liquidity concerns. The focus of this research paper is to take an initiative to address negligent lending associated with CDSs, by imposing an “excess” for CDS contracts. Further, this paper extends its focus by introducing re-protection (similar to re-insurance) and liquidity margins to safeguard the protection seller. We will not present our proposed solutions as complete or as solution to every problem associated with CDSs. There are a lot of other aspects that should be addressed in future. Our attempt inter alia is to take the first step in providing an effective regulatory framework to minimize moral hazard issues that led to negligence in lending.

As has been noted above, most literature focused on addressing the symptoms of GFC, while losing concentration on the cause. It is true that monitoring protection seller, incorporating insurable interest to avoid wagging is necessary, yet, none of those solutions address the information asymmetry and the moral hazard issues associated with CDSs. Hence, the significance of this research is that we address the core moral hazard issue through the proposed regulatory solutions for CDSs.

The structure of the paper is as follows: Section 2 of the paper is the literature review. Section 3 describes the methodology. Section 4 analyzes the legal mechanism behind CDSs and how it should be regulated in a manner that discourages negligent lending and safeguards the protection seller. Section 5 is the conclusion.
2. Literature Review

This literature survey is in threefold. Firstly, we focus on literature in order to understand how scholars have classified CDSs. This is to understand whether CDSs are treated as insurance or not. It is true that the classification matters least in our analysis. However, the reason behind any such classification matters when it comes to regulating CDSs. Secondly, we look into post-GFC literature to understand the manner through which CDSs are related to systemic risks. If CDSs do contribute to systemic risk, then the question is “why?” Finally, we look into the most important part of the literature review where regulatory solutions have been proposed to regulate CDSs.

Stulz (2010) argued that CDSs are not insurance due to the fact that payment obligation is not based on the insured suffering an economic loss; and insurable interest is not a must for CDSs derivatives. Schwartz (2006) also agreed with the view that CDSs do not fall into the category of insurance since they lack insurable interest. Saunders (2010) argued that CDSs are a form of contingency insurance (or indemnity insurance) and should meet the three criteria identified in Prudential Insurance Company v Inland Revenue Commissioners (1904). This is due to the fact that indemnity depends on the occurrence of a specific event. Chen et al. (2009) classified CDSs as a form of insurance while identifying CDSs as a form of non-traditional insurance. Brandes (2009) did not identify CDSs as an insurance due to the fact that insurable interest and indemnity are not associated with it. Schmaltz & Thivaios (2014) argued that from a regulatory perspective, CDS cannot be considered as insurance contracts. The protection buyer of a CDS is capable of gaining compensation without suffering a loss (and potentially realizing a gain), whereas insurance policies only pay to compensate a loss (and not potentially realizing a gain). Thus, the basis for the argument that CDSs are not insurance, is based on the fact that CDSs do not deal with insurable interest and indemnity.

In the second section of the literature review, we look into the premise whether CDSs contribute to systemic risk. Systemic risk can be defined as the risk that the default of a firm or a group of firms will result in the failure of the financial system as a whole (Zolnor, 2009). This article looked at literature on systemic risk in the light of the GFC and CDSs. Chen et al. (2009) argued that the systemic risk is minimal in the traditional insurance industry, whereas non-traditional insurance (CDSs) result in systemic risk during recessions. As a result, companies which undertake protection for debt obligations are subjected to systemic risk during a period of crisis. They further argue that CDSs can trigger the cascading chain of reactions in the financial system. When these assets are insured by CDS, the insurer is subjected to systemic risk. Angelini (2012) found that CDSs result in contagion as well as negatively affect the stability of the banking sector. Banks tend to engage in illiquid and risky credit portfolio when they are protected by CDSs. Rowe (2011) argued that during business downturns, CDS defaults are inevitable, which then affects the financial stability of major market makers. Baluch et al. (2011) stated that the growth of insurers’ links with non-traditional insurance activities result in creating systemic risk. Posner and Weyl (2013) explained that insurance enables people to reduce risk, whereas gambling (which takes place due to naked CDS) can (and will) result in systemic risk, if it take place in financial markets.

As far as solutions are concerned (apart from disclosure requirements and prudential regulation requirements), suggestions by Posner and Weyl (2013) are twofold. One is to incorporate insurable interest for CDSs (or in other words to ban naked CDSs). The argument is that insurable interest will prevent CDSs from being used as a betting (or wagering) instrument. The other solution is to establish a government agency that would
decide whether a new financial product should enter into the market or not. By doing so, the proposed agency will look into whether the new product can be (and will be) used for betting purposes. McIlroy, (2010) proposed mandatory collateralisation and prohibition of naked CDS protection buying unless measures can be put in place to ensure that it does not have adverse effects in case of default by reference entities. Brandes (2009) and Jarrow (2011) highlighted the need of regulation imposing stricter collateral and higher equity capital for CDSs. McIlroy (2010) suggested imposition of capital penalties on bespoke CDSs, mandatory collateralisation, prohibition of naked CDS protection and the introduction of large exposure counterparty limits. –Juurikkala (2014) and Young et al. (2010) emphasized the need for insurable interest (or in other words, banning naked CDS). Blakey (2013) suggested the need of taxing naked CDSs under gambling in order to discourage entities from buying CDSs without an insurable interest.

As per this literature review, we point out that (i) CDSs are a form of insurance that lacks insurable interest and indemnity. (ii) CDSs result in systemic risk and that is due to the fact that CDSs lack insurable interest (and thus used for betting). (iii) As far as solutions are concerned, incorporation of insurable interest (ban on naked CDSs) and capital requirements are prominent suggestions.

Post GFC literature is keen on preventing betting associated with CDSs. Solutions range from banning naked CDSs to taxing them as a form of gambling. On the other hand, a set of scholars paid great emphasis on prudential regulation of the protection sellers while having faith in monitoring and registering CDSs as well as protection sellers. Literature further emphasized capital requirements in order to protect the protections seller. Since CDSs were totally unregulated during the pre-GFC era, solutions coming out of literature would make CDS a safer financial instrument.

However, literature failed to identify the core moral hazard issue that paved the way for the creation of “lemons”3. Creation of lemons was an inherent problem associated with CDSs especially in the context of originate-to-distribute business model. Even if betting did not take place, those lemons would default at some point in time; it is just a matter of time. Even without betting, a large number of defaults would create systemic risk (perhaps in a less painful way) through the bankruptcies of entities who assumed the risk of lemons. Thus, we argue that the existing literature on regulating CDSs is more or less addressing the symptoms but not the root cause behind it. In order to prevent a similar crisis, it is important to make sure that no “time bombs”4 are created. We do agree that prima facie incorporation of insurable interest is a necessary condition in regulating CDSs, yet we argue that it is not sufficient. We need to address the point where moral hazard associated with CDSs creates lemons, which is the main gap in already existing literature. We focus on addressing that loophole in literature by introducing the concept of “excess”, which is utilized as a part of proposed regulation which would offset the existing moral hazard issue associated with CDSs.

We further argue that risk concentration with the protection seller is not adequately addressed by the existing literature. Risk assumed by a protection seller remains within the same entity. There is no regulatory provision proposed in literature to mitigate risk concentration on a single protection seller. Thus, in case of a number of defaults, a bankruptcy such as that of AIG is still possible. On the other hand, literature does not address the liquidity needs of the protection seller that are essential in paying off any claims that may be incurred. In order to address these gaps in literature, we introduced re-insurance and liquidity requirements which will be discussed in detail in section 4.3.
3. Methodology

This paper adopts a lexonomic (economic-analysis-of-law) approach, embedded in the second best efficiency criteria, following the tradition of Mishan and Quah (1982), Little (2002) and Kolsen (1968). Data for this research was actual (pre-GFC) CDS contracts, applicable legislation and policy reports. The paper analysed the actual CDS contract arrangements and compared them against the theoretically optimal contracting and regulatory arrangements derived from the welfare and financial economics literatures, which were used as benchmarks for the analysis. Significant shortfalls between actual and theoretically optimal arrangements form the basis of recommendations to reform the law or practice, either in the interests of ‘better’ contractual design or (perhaps) more effective regulatory design, whether within or between jurisdictions. The formulated benchmark (or in other words, the theoretically best provisions) may not be achievable in the practical world due to constraints (e.g. consumer protection considerations). Thus, this analysis essentially follows the second-best efficacy criteria.

4. Analysis

4.1 What is a CDS and How Does it Work?

A CDS is a derivative financial instrument (Shadab, 2010) and probably the most common form of a derivative (Saunders, 2010). A CDS is an agreement designed for the purpose of shifting credit risk between parties. Similar to an insurance contract, in a CDS the lender of money buys a protection against the default of the borrower (United Nations, 2010; Juurikkala, 2014). The party who buys the protection (known as the protection buyer) pays a periodic fee (called the spread) to the party who sold the protection, referred to as the protection seller. In the case of a default (called a credit event) of the debt instrument (which is called a reference obligation), the protection seller will purchase the particular debt instrument and compensate the protection buyer (Angelini, 2012; Brandes, 2009) (Figure 1). For example, a Greek sovereign bond would pay its holder the value of the bond, provided the Greek government defaults the bond. A CDS is considered as a “covered CDS” if the protection buyer is the owner of the bond or else a “naked CDS” if the protection buyer is not the owner of the bond in question (Posner and Weyl, 2013).

**Figure 1: Mechanism of a Vanilla CDS**
As we have already understood, CDSs are primarily used as a way to allow lenders (e.g. Banks) to hedge the risk of their lending. The bank can thus enter into a CDS contract. If the borrower defaults, the bank can claim the loss from the protection seller (Saunders, 2010; Brandes, 2009). In this manner, banks were able to grant mortgage loans and sell them, resulting in excessive lending and excessive risk taking (Bebchuk et al., 2010; Crotty, 2009). Lenders on one hand used CDS to reduce their risk exposure, by shifting the risk to a third party while CDS providers preferred CDS since they can collect ‘easy money’ in terms of spread (Sjostrom, 2009). As a result, prior to the GFC, CDS were used to hedge the risk of mortgage-backed securities in massive scale (Stulz, 2010). CDS contacts reported a figure of $ 632 billion in 2001. By 2005 the notional value of all CDSs tracked by the Bank for International Settlements (BIS) was around $10 trillion. By 2007 it showed a figure of $58 trillion (United Nations 2010; Zolnor, 2009).

4.2 How the AIG Went Bankrupt

Commodity Futures Modernization Act of 2000 provides legislation prohibiting the Securities Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC) regulating over-the-counter derivatives. Government of United States (2009) identified that the CDSs are transacted by sophisticated parties who can fend for themselves and thus such instruments should not be safeguarded by the SEC and CFTC.

This paper unveils the story behind bankruptcy (or we may call it near-bankruptcy) of AIG as an epic example of the risk behind unregulated (or perhaps loosely regulated) CDSs. Founded almost a century ago, AIG was one of the largest insurance companies in the world with AAA credit ratings. The innovative solution that the AIG had come up with was the sale of CDS to financial institutions. AIG provided an unconditional guarantee for financial products and thus inherited their AAA ranking for their transactions as well. AIG earned $ 0.02 per year for every $ 1 they insured. AIG had a confidence level of 99.85% that the super senior tranches (AAA rated) they have insured cannot default. As a result, by late 2007, AIG had given $230 billion protection on corporate loans, and $ 149 billion on residential mortgages. For AIG, CDSs are “gold” and “free” money (Sjostrom, 2009; Zolnor, 2009). Among the four main business units of AIG, Financial Services dealt with CDS business. In 2007, AIG suffered a loss of $ 9,515 million on losing bets on CDSs; the same bet had given them a profit of $ 4,424 in 2005. According to the AIG calculation, the possibility of a default is 0.15% which was crystallized in 2007 (American International Group, 2011).

When the subprime borrowers started deflating, AIG had to indemnify both the covered and naked CDS contract holders (National Commission on the Causes of the Financial and Economic Crisis in the UN, 2011). On the 15th of September, 2008, the credit rating of AIG was downgraded. Standard & Poor’s Ratings Services downgraded AIG to ‘A-’ from ‘AA-’ and most of AIG’s insurance operating subsidiaries to ‘A+’ from ‘AA+’. This downgrade followed the need for additional collateral obligations for AIG (Cohan, 2010). The attempt to raise additional funds for AIG did not succeed. The private sector lending facilities did not hold favourable views in order to lend to AIG. On the following day (16 September 2008), the Federal Reserve Board stated that AIG will be bailed out (Sjostrom, 2009; Cohan, 2010). The main reason behind the financial depression of AIG was losing those “bets” on which they had so much faith (Harrington, 2009). Since the CDSs of the AIG were widespread, the counterparties of AIG faced significant write-offs. Those counterparties consisted of prominent financial institutions of the world (Sjostrom, 2009).
As far as the story behind AIG is concerned, it revealed several concerns. (i) AIG issued naked CDSs since they had so much faith that there could be no credit event. (ii) No sufficient liquidity was maintained in order to deal with probable future claims (iii) the risk assumed by IAG was concentrated on them since there was no mechanism for re-insurance.

4.3 A Proposition for New Risk-preventing CDS Framework With Regulatory Input

One key problem associated with the originate-to-distribute model is that the lenders are less concerned about the quality of the loans they make. This gives rise to an information asymmetry that leads to a moral hazard problem. In this paper, we argue that the already existing proposals cannot address the moral hazard issue associated with CDSs. 

The CDS provider has no information about the quality of the loans she insures. Banks on the other hand can exploit this information asymmetry and grant loans to non-credit worthy borrowers (also known as sub-prime borrowers) or alternatively banks will not engage in costly screening (before granting a loan) or monitoring (after granting a loan) of the borrower. The situation can get worsened if those lemon loans are securitised and sold to investors around the world. A development in the modern insurance industry may provide a solution for this moral hazard dilemma.

A person who purchased an all-inclusive full insurance cover for a car has little incentive to be careful on the road (this is disregarding how much that person is cautious about any physical damage that can occur due to careless driving, legal consequences and any sentimental value she has on the car), giving rise to a moral hazard problem. The best solution (theoretically optimal or optimum optimorum) from the point of the insurance provider is a situation where the driver gives her maximum care in driving the car. However, in practical terms, since the insurer cannot observe the driver (the constraint); achieving the theoretically optimal situation is not possible. Then, we have to search for a second best solution.

Some insurance providers who are engaged in motor car insurance industry adopt the concept of an “excess” to address the moral hazard issue associated with insurance. Accordingly, the insurer imposes a lower limit of compensation. For example, any damage under $100 will not be compensated. If the damage exceeds $100 (say the damage is $5000) then the insurer will pay an amount which is equal to damage minus the excess. In this case, it will be $4900 ($5000 - $100). As a result of this, the car owner knows that in case of damage she too has a cost of $100. Hence, a person who purchases an all-inclusive full insurance cover with an excess will tend to be cautious (than she used to be) in driving. This may be (and obviously is not) the best solution for the moral hazard associated with insurance. Yet, it will be one of the second best solutions available.

There is nothing preventing the above analogy from being applied to the CDS industry. The best possible and theoretically optimal is a situation where bank engages in a thorough screening on the borrower and her credit history, prior to accepting the loan application and then engages in monitoring the borrower after lending, making default risk minimum. However, the insurer is not capable of monitoring the bank (the insurer can engage in monitoring at very high cost, which then will not be efficient. This is the constraint in fully illuminating moral hazard in this situation) on whether the bank engages in pre and post lending screening and monitoring. The second best alternative we have is to make sure that the bank will do some screening and monitoring. The protection buyer can impose an excess on protections she undertakes. This could be a percentage of the
face value of the mortgage or a flat amount. However, our discussion needs more practical emphasis. Bank earns interest by granting a loan, which ties up her capital for the loan period. If the excess amount is too low, and exceeds how much the bank can earn from the loan, the bank will still execute that loan. For example, if the bank believes that the borrower will default in 10 more years by which the bank can earn $10,001 which is beyond the excess amount of $10,000, the bank will still execute that mortgage proposal. The argument is that the existence of a sufficient excess will tend the bank to be cautious (than she used to be) in lending. This will partially illuminate the moral hazard issue incorporated with CDSs, which leads to negligent lending. The concept of excess allows the insurer to make sure that the insured has a “skin in the game” and will not voluntarily expose to excessive risk taking.  

As far as the near-bankruptcy of AIG is concerned, the financial safety of the protection seller appears to be critical in giving rise to systemic risk. One reason why AIG was not left for bankruptcy by the U.S government was the fact that if one big financial entity goes bankrupt, it can lead to a chain of bankruptcies. Concentration of CDS related risk in one financial institute like AIG will make such an institute exposed to massive losses in case of a significant number of defaults. Re-insuring (we can perhaps call this re-protection in terms of CDSs) a part of risk assumed by CDS contracts can spread the risk concentrated in one financial institution among many other protection sellers, making the system less viable for unexpected defaults. AIG will be in better terms if they had re-insured some of their risks with some other insurers.

As we have already noted in the literature review, post-GFC literature emphasises the need for capital requirement for protection sellers. In the case of AIG, the problem was that there were no liquid-collaterals set aside to meet-up with possible future defaults, in a situation where AIG had sufficient assets to meetup with their liabilities in illiquid form. The amount of liquidity needed for the CDS providers again is an empirical question (similar to liquidity needs for banks), which should be addressed in a future Basel accord. We argue that re-insurance and liquidity margins should be included in regulating CDSs in order to safeguard the protection seller.

Diagram 2 depicts how things would work based on (i) the current mechanism behind CDSs, (ii) how things would change when post GFC proposals are incorporated, (iii) what remains unsolved and how our suggestions would help to sort out unsolved issues.

For simplicity, we have made one assumption. In the actual pre-GFC context, where mortgages were securitized, the actual mechanism may appear to be more complex. If securitization exists, the lender will sell the mortgage to an offshore Special Purpose Vehicle (SPV), adding several more entities to our discussion. However, the underlying moral hazard and information asymmetry issues will be the same. Thus, for simplicity, we assume that there is no securitization. All relationships are numbered from (1) to (9) and we use the number in the diagram to refer to the relationship.

In a conventional borrower-lender scenario, it will be only relationship (1) and (8) that exists. Relationship (1) refers to the actual transaction. The lender makes a loan and the borrower pays interest and capital over a period. Relationship (8) refers to pre and post lending screening and monitoring. When CDSs enter into the picture, things changed. Lender and the protection seller would enter into a CDS contract (relationship 2). Since the risk of default can be shifted, the lender would not engage in pre lending screening and post lending monitoring. Since CDSs are not regulated, entities with no insurable interest can enter into naked CDS contracts with protection seller. The naked CDS buyers will
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continue to pay a spread to the protection seller (denoted by (3 and 4)). In this manner, prior to the GFC relationships (1) to (4) were in practice. Only the lender holds a covered CDS. If the borrower defaults, the protection seller has to pay compensation to the lender as well as all “n” number of bettors. This is where AIG went bankrupt.

Figure 2: Regulating CDSs

Let us move to post GFC recommendations. One of the main recommendations is to incorporate insurable interest into CDSs. We strongly agree with this suggestion. When insurable interest is incorporated with CDSs, there will be no naked CDS buyers any more. As a result, gambling will be eliminated from the CDS market. Hence, the naked CDS contacts will disappear from the picture (relationships 3 and 4), the protection seller will be comparatively safe (compared to a situation with no insurable interest) in case of a default.

Literature suggests a regulator overseeing the protection seller which includes prudential regulation etc. (relationship 5). Literature contains recommendations including central clearing, derivative register etc. (6) on CDSs. If a default takes place in this situation, the protection seller will be much safer compared to the pre GFC situation, provided that there are no bettors, and capital requirements are in practice. We argue that even up to relationship (6) the system is still at risk. The lender will not be engaged in pre and post lending screening and monitoring and thus the creation of lemons will continue. In case of a default, the risk is still concentrated in the protection seller and protection seller will still undergo liquidity issues.

This is where we make our contribution to the existing literature. With the concept of excess (as described above), the lender shares a part of the risk (9). As per the discussion above, the lender is forced to engage in pre and post lending screening and monitoring (8). Further, we recommend re-protection, and also liquidity margins for protection sellers via the regulator. Our recommendation of an excess unravels when naked CDS contracts
are allowed. Thus our recommendation of an excess is made assuming insurable interest is already incorporated with CDSs.

If a default takes place after meeting our recommendations, part of the loss will be shared with the lender and part of the remaining loss will be shared with the other protection sellers who assumed re-protection (9 and 7). Further, the protection seller is equipped with liquidity to meet up with an unexpected loss (by enhancing liquidity requirements via relationship 5). It is less likely that the protection seller will be dragged into near-bankruptcy like in the case of AIG. Besides, in the first place, our recommendation of an excess will surely force the lender to make a proper screening before granting the loan and post monitoring after the loan. Henceforth, there will be less defaults (since there are less lemons) compared to all previous situations.

There is only a very little emphasis on the role played by the rating agencies in the post-GFC literature. According to then-existing practice, it was the securitizer who paid for the rating agency to provide rating for them. This again gives rise to a conflict of interests and moral hazard concerns. One solution would be to make the investor pay for ratings of the securities. On the other hand, the rating agency should bear liability about the ratings being provided by them. Alternatively in conjunction with our discussion on excess, the rating agency can evaluate the credit worthiness of the borrowers before granting credit ratings. However, this concern is left for the future researches addressing the moral hazard issues dealing with CDSs and securitization.

5. Conclusion

Current GFC urged the need for regulatory solutions for unregulated CDSs. CDSs coupled with securitization based notes accumulated massive amount of risk in the financial system. With no requirement for an insurable interest, CDS business turned into a gamble. When interest rates started increasing and subprime borrowers started defaulting, both naked and covered protection buyers claimed for their compensation. Protection sellers, who had neither sufficient liquid collaterals nor re-protection arrangements to mitigate risks, were dragged into financial distress. While deviating from the conventional approach of regulating CDSs, this paper emphasises the need for CDSs to be regulated in a similar manner to that of insurance, in order to prevent a similar devastating financial crisis. This research *inter alia* brings the concept of excess into the proposed regulatory suggestions for CDS, adding a further step for existing literature.

As far as the implications of this research are concerned, we can expect that the lenders (especially banks and other mortgage providers) will always engage in pre lending screening of the borrower and post lending monitoring in order to minimize the creation of lemons. This essentially means that the quality of the mortgages will enhance while in response, arguably we can expect a decline in the quantity of mortgages. The cost of providing a mortgage will increase together with the time taken for approving a loan. On the other hand, short term profits of protection sellers are more likely to decline. This is mainly due to the fact that ‘free and easy money’ from bettors will wipe-out with the introduction of insurable interest. Liquidity margins and reinsurance will strengthen the long term stability by making the protection seller less viable against sudden and unexpected defaults. On the other hand, the introduction of liquidity margins and the need for re-protection will tie up some capital with business entities, which will again have negative effects on short term profits.
Endnotes

1 There are arguments that CDS are not the case behind the GFC. see (Wallison, 2009)
2 About 80% of CDSs issued by American International Group (AIG) are naked CDSs (Zolnor, 2009).
3 Akerlof (1970) uses the term “Lemon” in order to refer “bad” cars in the second-hand car market. We use the word Lemon to refer sub-prime mortgages.
4 We use the word time bomb to refer to the sub-prime mortgages which would default with slightest changes in the economic conditions. See Fishbein and Wooldall (2006).
5 Since the bank have little concern about the borrower, bank were eager to grant more loans and sell them, by which they can earn a large sum of fees and commissions.
7 However AIG had around $ 1 trillion assets, yet in illiquid form (Sjostrom, 2009).
8 Alternatively one can argue that the insurance company can impose a higher premium for insuring risky loans and CDS contacts without an excess. In this way the insurer can price the moral hazard problem into the premium. But in this paper, we assume a static setting, or argue that an excess reduces the risk of “fly-by-night” lenders, i.e., mortgage companies that exist only for a short time to make a quick buck from careless lending practices which are insured by CDSs. Thus incorporating moral hazard into the premium is less effective when it comes to CDSs. Our recommendation of excess which prices the moral hazard problem into a deductible (excess) will address the root cause of the problem by making the bank responsible for her own bad loans. Banks will share part of the loss in case of a default. This will eliminate the bank’s ability to make a deliberate bad loan, get it insured without an excess (probably with a higher premium), transfer the risk entirely to the CDS provider, receive a payout when the bad loan defaults, and immediately liquidate to avoid future premium increases (higher CDS prices).

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