

MSc Insurance and Risk Management

Credit default swaps have been widely used to reduce the risk of default on financial products. Can a similar solution be designed to reduce the risk of default on insurance contracts and why, given the recent distress in financial markets, would a company choose to underwrite such a risk?

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30th July 2009

Abstract

Assessing the risk of insurer insolvency is an integral part of prudent insurance procurement. This paper looks at how companies evaluate insurer solvency to follow both their own internal guidelines and requirements set out by any financing arrangements that they might have. Often, far in advance of actual insolvency, insurers are required to be taken off-risk to satiate such internal or external requirements and we find significant evidence to suggest that this is highly inefficient. By drawing on principles derived from the structure of credit default swaps, we find that rather than replacing such insurers, the risk of default should be calculated and additional premium paid for a contingent solution to protect the insured from any potential impairment – contingent credit insurance.

To assess the commercial attractiveness of underwriting such a product we then go on to further examine the key issues that might prevent its implementation such as required return on equity, recovery potential post loss, government regulation and the hierarchy of claims in winding-up an insurer. Finally, we calculate the market size for this type of product but observe potential issues that could arise including systemic risk and unforeseen market reactions. We ultimately conclude that contingent credit insurance would remove the need to replace insurers on risk which exploits a financial market inefficiency to provide an extremely attractive underwriting proposition.

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1. Introduction

The purpose of this paper is to explore a common problem in the insurance industry, that of the risk of insurer insolvency, but rather than follow the conventional research route of analysing government regulation and solvency margins, we explore an arguably more commercial option to enhance insurer solvency.

We begin our study by discussing how the risk of insurer insolvency, assumed by the insured, is assessed by rating agencies and at how the benchmark rating of “A-“ has been included in debt-financing arrangements. We provide examples of parts of commercial transactions that lend themselves to substantiate this requirement and consider the implications of an insurer falling below the benchmark level drawing on the practical repercussions of replacing such an insurer.

We go on to calculate the actual increased risk of an insurer downgrade through a premium calculation that can be extrapolated from the structure of a certain credit derivative, the credit default swap. Developing this concept, we consider whether this risk can be translated into a premium reflective of two events occurring: a) that there is a claim on the underlying insurance policy and b) that the insurer is financially impaired.

In the latter Sections we discuss how our premium calculation forms the basis for a new variation of insurance product, contingent credit insurance, and explore the key underwriting issues that would be fundamental to such a product’s implementation.

Throughout this paper we draw on a mixture of academic journals, books, articles and websites alongside some practical considerations drawn from the author’s own commercial experience. Based on such findings, we are finally able to conclude on the feasibility of an insurance product that could circumnavigate a common insurance market problem and on whether such a product would be attractive to an underwriter.

2. “Bottomry” to Modern Day Insurance

“Insurance is a well established mechanism for the management and financing of business risk¹” but, as with any financial contract, the suitability of insurance arrangements depend on both the contractual terms and the financial strength of the guarantor. In this Section we look at the latter, noting that assessing insurer solvency has become essential part of prudent insurance acquisition.

One of the earliest examples of an insurance contract was the Babylonian practice of “bottomry” which once enabled the owner of a ship to borrow money for equipping or repairing his vessel, pledging the ship as security. If the ship was lost at sea, then it was understood that the loan would be forgiven². The modern day comparison of a “hull and machinery” insurance policy reveals that whilst the contract terms follow roughly the same principle (the insured would be covered against “perils of the sea”), the fundamental difference is that it is highly unlikely an insurer would wish to pay claims at the outset. This means that the insured must rely on the ability of the insurer to adequately manage his

¹ Punter, A. (2007) Risk Management

²Britannica website, available at: <http://www.britannica.com/EBchecked/topic/75319/bottomry>

business to meet any future claims obligations i.e. there is a risk that an insurer will not have the ability to pay claims.

Although we might today consider purchasing insurance based on prospective risk (the fortuitous) and retrospective loss (an indemnity) to be a better reflection of the relationship between the insured and insurer, we note that the risk of insolvency has passed from insurer to insured. In the next Section, we look at what causes insurers to fail and how this risk is mitigated before discussing how companies benefit from maintaining insurance with financially suitable insurance companies.

3. Insurer Insolvency

In this Section we discuss the risk of insurer insolvency, how rating agencies assess such risk and the impact the decline of insurer insolvency on debt-financing arrangements.

3.1. What causes insurer insolvency and how is it mitigated?

In this Section we draw on research from leading academics Leadbetter and Dibra to examine whether there are underlying fundamental trends in determining the main components of risk that cause insurer insolvency and how rating agencies have enabled prospective insurance buyers to assess such risk.

Available literature on insurer insolvency mainly stems from the U.S. as discussed by A.M. Best's Risk Based Capital Model (2004), the National Association of Insurance Commissioners and Financial Analysis Solvency Tools. Leadbetter and Dibra (2008) examine such literature in the Geneva Papers on Risk and Insurance and Figure 1 below shows the three leading causes of insolvency against the jurisdiction where data was collected. Most importantly, we note that across four very different jurisdictions the leading cause of insolvency is inadequate pricing or reserving.

Main causes of insolvency	Jurisdiction			
	United States	Canada	EU	Asia
Primary Cause	Inadequate pricing/ deficient loss reserves	Inadequate pricing/ deficient loss reserves	Inadequate pricing/ deficient loss reserves	Inadequate pricing/ deficient loss reserves
Secondary Cause	Fraud	Foreign Parent	Asset Risk	Asset Risk
Tertiary Cause	Significant Change of Business	Rapid growth	Failed Systems	Concentration of business

Figure 1: an international comparison of the causes of insolvency³

Considering the fortuitous nature of insurance, it is unsurprising that Leadbetter and Dibra's research shows the principal risks of insurer insolvency to be inadequate pricing or reserving but, because of other external factors, the risk is dynamic i.e. it varies based on several factors including market competition, government legislation and investment returns. Historically, the insured would mitigate this risk by careful analysis of the insurance company's operational and financial performance but, due to the changing complexity of

³ Taken from Leadbetter and Dibra, (2008) The Geneva Papers on Risk and Insurance

this external environment, this function is now largely carried out by credit rating agencies. Their task, according to Standard and Poor's, is to "provide financial decision-makers with the information and opinions they need to feel confident about their decisions"⁴. Essentially, rating agencies examine the probability of insurer default and demonstrate their findings by categorising such companies into rating bands. We would expect the prudent insurance buyer to examine such ratings to ensure that the risk of an insurer not being capable of meeting future claims obligations is minimal, the typical minimum benchmark being an "A" rating.

The rating agencies' ability to assess such dynamic credit risk therefore holds significant weight in considering which insurer to insure with. In the next Section we look at what impact an increased risk of insurer insolvency, which typically manifests itself in a rating downgrade, can have on the insured (even before claims have been incurred) and how such risk is considered in the context of financing arrangements.

3.2. The impact of insurer solvency on debt-finance arrangements

Debt-financing is widely used by companies wishing to make investment decisions earlier than they might do from pure equity-financing, to take advantage of tax efficiencies⁵ or just to increase return on equity - whatever the rationale, debt is an important part of the genetic make up of the global economy. Debt-financing is arranged by banks that have very strict lending criteria which carries the obligation to conduct due diligence on the would-be borrower's creditworthiness. With this in mind, in this Section we look at what benefit a commercial borrower gains from insuring with suitably rated markets as well as the ongoing obligation to maintain their insurance with appropriately rated markets.

One benefit of maintaining insurance with financially sound insurers is that it enables easier access to finance and particularly debt-finance. For example, under Basel II requirements (Annex 4 - Supervisory Slotting Criteria for Specialised Lending) the qualities of borrowers' insurance arrangements are taken into consideration⁶. It follows that, on seeking debt-financing, companies' insurance arrangements are audited to ensure that they meet financiers' requirements for both the risk associated with the potential loan and for regulatory purposes.

Debt financiers will therefore typically require, as a condition precedent to any asset-based loan, the borrowers' insurances to be placed with insurance companies of "sound financial standing and international repute and with a rating of at least A- from A.M. Best (or equivalent from Standard and Poor's, Moody's or Fitch)". Appendix 1 shows an extract from a loan document detailing such a requirement⁷.

Once a borrower has drawn-down on a debt-facility, there is usually also a secondary requirement to "maintain insurance" with insurers of "sound financial standing and international repute and with a rating of at least A- from A.M. Best". This provides debt-financiers with the comfort that the terms of the loan will not adversely be affected

⁴ Standard and Poor's website, available at:

<http://www2.standardandpoors.com/portal/site/sp/en/eu/page.home/home/0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0,0>
[.html](#)

⁵ Brealey, R; Myers, S and Allen, F (2006) Corporate Finance 8th Edition, McGraw- Hill Irwin

⁶ Basel II: International Convergence of Capital Measurement and Capital Standards: a Revised Framework (2004), available at: <http://www.bis.org/publ/bcbs107d.pdf>

⁷ It is beyond the scope of this paper to discuss in detail the intricacies of debt-financing.

(financiers, in turn, may be using the cash flows generated by such a loan to fund other ventures) and regulators may assess the bank’s portfolio of risk, including examining the solvency of the borrower’s underlying assets.

This creates a problem as insurance contracts have a specified policy period and we know from Figure 1 that adverse developments on the performance of an insurer’s book of business can cause insurance companies, which would have had a suitable rating at inception, to be downgraded below the A- threshold. This leaves the insured with the obligation, under the terms of the debt-financing, to either replace such an insurer or to solicit a waiver of the loan requirement which would decrease the value of the loan to the debt-financier, referred to as “agency cost”⁸ and provide further concern for regulatory audit. Figure 2 below shows how insurance arrangements can adversely impact on debt-financing arrangements when both contractual arrangements run in parallel.

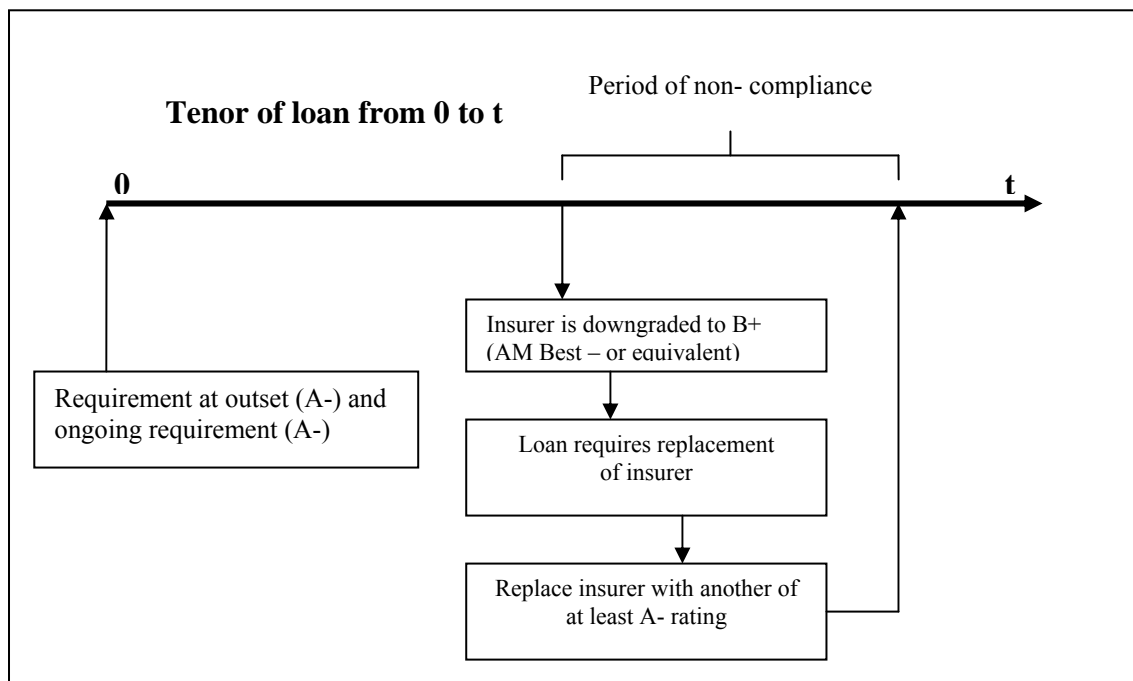


Figure 2: diagrammatical representation of insurer downgrade during the tenor of a loan.

We can therefore deduce that, although mitigated by the selection of appropriately-rated insurers at policy inception, insurers can become less solvent during the tenor of a loan. This potentially has both an impact on the underlying rate of the loan and a possible regulatory requirement for the lender to hold more capital for the underlying risk. In the next Section we look at what happens when a borrower is required to remove an insurer when such a situation arises.

3.3.Replacing downgraded insurers

As we can see from Figure 2 above the borrower can be put in the position of breaching a loan requirement through no fault of their own. However, the borrower still has an obligation to replace this market and in this Section we look at what options are available to

⁸ Subramanian, K., Tung, F. and Wang, X. (2008) *Law, Agency Costs and Project Finance*, American Law & Economics Association Annual Meetings; Vol. 18 Issue: Number 77 p2572-2572

the borrower as well as identifying any inefficiency that may arise from removing an insurer mid-risk.

If the borrower has contravened the requirements of a loan agreement, resolution of the issue in the insurance market can be time consuming and therefore costly to resolve. Realistically the insured has the following options:

1. Keep the same insurer and breach a loan covenant that could increase the interest rate on a loan/ have regulatory impact for the bank
2. Remove the insurer and replace with a sufficiently rated market

If the insured decides to replace the market, several inefficiencies arise:

1. The existing insurer may not agree return of any premium;
2. The application of a "downgrade clause" which commonly specify an A- rating as the benchmark below which the insured is entitled to invoke cancellation⁹ (examples of such clauses can be found in Appendix 2) allows return of premium to the insured, calculated on a pro rata basis - which may give rise to a situation where the pro-rata premium rebate is not sufficient premium to replace the market;
3. Additional brokerage may be incurred;
4. Advice given to financiers for a fee/ financiers costs may be significant in dealing with the issue;
5. An alternative market may not exist;
6. Time delays are incurred; and
7. Quality of cover may deteriorate as insurers try to limit cover based on possible claims experience.

Therefore we can make the following conclusions:

- Depending on the size of the loan a basis point increase could be a huge increase per annum (even a 1 basis point increase on a USD100,000,000 loan is an extra USD10,000 per annum).
- Replacing an insurer mid-risk is highly inefficient.

In the next Section we look at how the banking industry has partly solved this problem through the application of credit default swaps and we go on to explore their potential application to the insurance industry to help circumnavigate this problem.

4. Product Development

In this Section we draw lessons from the wider financial world to develop a product that would enable an incumbent insurer to remain on risk. We hypothesise that this avoids incurring a basis point penalty on a loan and the inefficiency of replacing an insurer mid risk.

⁹ Article by Simon Kilgour, partner, Reynolds Porter Chamberlain LLP, available at: <http://www.inhouselawyer.co.uk/index.php/insurance/6950-entire-agreement-clauses-excluding-earlier-agreements-and-representations>

4.1. Credit Default Swaps

In October 2008 and in the midst of the sub-prime write downs¹⁰, journalists recounted a pivotal moment in banking history when the credit default swap (“CDS”) was born¹¹. This product allowed JP Morgan to remove default risk from its books and free reserves held, required by law, to protect against such a risk. In this Section we look at the basic principles of a CDS to analyse the way in which a CDS contract is formed so as to consider how it could be adapted for application in insurance arrangements. As a side issue we note the lack of transparency in such contracts has caused considerable problems.

Brealey et al. (2006) describe a CDS as a credit derivative which “protects lenders against the risk that a borrower will default”. The product works on the basis that there is an underlying financial arrangement between two parties i.e. “A” lends money to “B” and that a third party; C, given sufficient consideration, would assume the risk that B defaults on its payments to A.

Figure 3 below is a simplified diagrammatical representation of a CDS; typically A will be a bank, B a borrower and C a reference entity (someone who deals in CDS). Realistically, although banks could take out individual CDS contracts on each individual loan that they make, a portfolio of loans usually forms the basis of contract. We note that C should have a higher credit rating than B to reduce the risk of default.

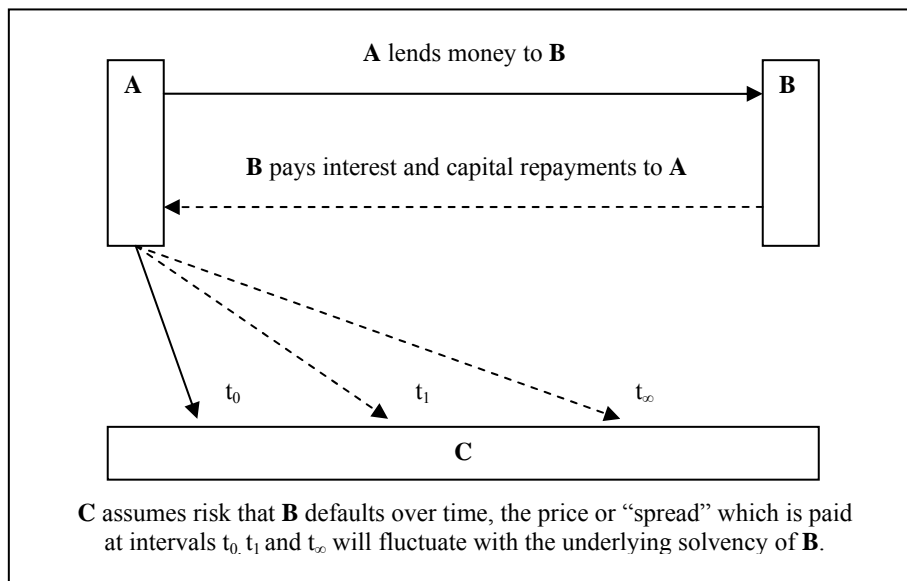


Figure 3: how a CDS works

CDS contracts certainly seemed to be fit for purpose, but they assumed that the underlying transaction was transparent¹² and that the spread was reflective of the risk. However in 2008, when AIG was bailed out by the U.S. government it became apparent that if they had merely been selling what constituted credit insurance on bonds, the CDS prices would have

10 Lehman Brothers, one of the world’s largest banks, had just filed for bankruptcy arising from billions of dollars of write-downs from the sub-prime U.S. mortgage market.

11 Phillips, M. “The Monster that ate Wall Street, how “credit default swaps” – an insurance against bad loans – turned from a smart bet into a killer” www.newsweek.com

12 There is increasing evidence to suggest that financial institutions use off-balance sheet amounts to disguise their financial position, ultimately shrouding the solvency of the underlying asset. Lander, G. and Auger, K. (2008) provide some comment on financial transparency and ethical awareness in *The Economic Impact of the Lack of Transparency in Financial Reporting*.

been more than adequate.¹³ The reality was that CDS contracts are also tradable and hence became “bear-market warrants for speculating on deteriorating conditions in a company or country” and “severely underestimated the risk”.¹⁴

Just as a tenant may have a guarantor, CDS contracts show that it is possible to reduce the risk of default on a financial contract by referencing a more solvent third party. We note that excessive speculation on such contracts leads to under pricing and that, given their complex nature, the transparency of the underlying financial contract is critical. The following Section investigates insurance law and whether a CDS contract could be used to mitigate the risk of insurer default on insurance contracts.

4.2. Insurance Law Restrictions

The CDS market is largely unregulated due to the U.S. Commodities Futures Modernization Act of 2000¹⁵. In this Section we find that there are legal restrictions on the application of a CDS to insurance contracts under insurance law. This helps to form the framework within which the application of a similar product (to that of a CDS) could work to reduce the risk of insurers defaulting on insurance contracts.

Birds, J (2007) suggests a broad definition of an insurance contract to be “any contract whereby one party assumes the risk of an uncertain event, which is not within his control, happening at a future time, in which event the other party has an interest, and under which contract the first party is bound to pay money or provide its equivalent if the uncertain event occurs”. For our purposes this would seem to imply that an insurance-linked CDS could be applied but when looked at in conjunction with some of the finer details of insurance law, we develop a more opaque understanding.

The sentence above “in which event the other party has an interest” provides the basis for our discussion. The doctrine of insurable interest has been albeit abolished under the Australian Insurance Contracts Act 1984, ss 16-18 which considers that where there was no insurable interest i.e. where a company would take a short position on the demise of another, insurance contracts would be considered gambling¹⁶. We therefore seem to need to revert to the Marine Insurance (Gambling Policies) Act 1909 (c.12)¹⁷ to substantiate that as contracts of gambling, insurance is void. Furthermore, in *Leppard v Excess Insurance Co* it was established that an insured party is only entitled to an indemnity against the amount of his loss and no more, therefore we can derive that the speculative aspect of a CDS would certainly be considered illegal under insurance law because it would be deemed to be gambling and could potentially put the insured in a better position than before the loss.

On the other hand, credit insurance itself i.e. to provide an indemnity against the risk of an individual or company becoming bankrupt, does not contravene insurance law as in *Waterkeyn v Eagle Star Insurance Co* (1920) it was established that a “creditor may insure

13 Soros, G. “One Way to Stop Bear Raids, Credit default swaps need much stricter regulation”. Wall Street Journal, March 3rd 2009.

14 Soros, G. “One Way to Stop Bear Raids, Credit default swaps need much stricter regulation”. Wall Street Journal, March 3rd 2009.

15 H. R. 5660 available at:

<http://www.cftc.gov/stellent/groups/public/@lrrulesandstatutoryauthority/documents/file/ogchr5660.pdf>

¹⁶ Beale, H (2006) British Insurance Law Association seminar, The Law Commissions’ project on Insurance Contract Law

¹⁷ Marine Insurance (Gambling Policies) Act 1909, 1909 CHAPTER 12 9_Edw_7 (An Act to prohibit Gambling on Loss by Maritime Perils) available at:

http://www.opsi.gov.uk/RevisedStatutes/Acts/ukpga/1909/cukpga_19090012_en_1

against his debtors insolvency.” Indeed, Trade Credit Insurance is widely available through syndicates at Lloyd’s of London¹⁸ and from insurance companies around the world. Appendix 3 contains an example of a typical policy wording.

We can therefore decompose a CDS into two separate components: one that cannot operate as an insurance policy because insurance law would treat the contract as speculation (gambling) and the other that the provision of simple credit insurance or enhancement is widely accepted. In the next Section we look at the design of a product that could assume this risk, within the guiding parameters of insurance law.

4.3. Contingent Credit Insurance

We know that to determine the amount of consideration required to provide an insurance contract (premium) the underlying risk needs to be quantified. In this Section we explore academic literature for the pricing of insurance contracts and then go on to derive our own formula for the pricing of what we call “contingent credit insurance.”

Leadbetter and Dibra (2008) express the following function for the pricing of insurance contracts:

$$P_t = E(L_{t-1}) + E(\pi_t^u)$$

Where $E(L_{t-1})$ is the expected loss (claims experience); and $E(\pi_t^u)$ is the expected underwriting result.

Therefore if we can agree that such an equation suitably describes the contract price, the missing component is only that of the probability of insurer default. Fortunately, we know from our discussion in Section 3.1 that the function to assess the risk of insurer insolvency is typically outsourced to credit rating agencies and that such a probability is can be derived from studies carried out by AM Best, who provide a table of Cumulative Average Impairment Rates for U.S. life/health and property/casualty data from 1977 to 2007., as set out in Figure 4 below.

Rating	1-year (%)	2-year (%)	3-year (%)	4-year (%)	5-year (%)
A++/A+	0.06	0.20	0.36	0.53	0.70
A/A-	0.20	0.61	1.14	1.68	2.30
B++/B+	0.75	1.80	2.89	4.24	5.66
B/B-	2.09	4.30	6.38	8.24	10.21
C++/C+	3.44	5.73	8.55	11.29	13.64
C/C-	6.08	9.54	12.08	14.64	17.28
D	7.38	12.42	17.23	21.50	25.62

Figure 4: A.M.Best Impairment Probability for up to 5 years¹⁹

¹⁸ www.lloyds.com

¹⁹ <http://www.ambest.com/ratings/methodology/impairment.pdf>

For the purposes of this paper we assume that the above table is a fairly accurate reflection of the actual risk however it is likely that to take this further a cross-comparison of different rating techniques should be used as well as any other appropriate data concerning the running of an insurance operation.

To generate a premium equation, we know that, in the event of an insurer downgrade, P_t would already exist as premium charged for the existing insurance policy. However we would need to reflect what would equate to the “CDS spread” in the equation to cater for the increased risk of insurer default, should a claim occur. To evaluate this risk we need to revert to the rating agencies and the probability table in Figure 4.

If we consider the risk of impairment to be $P(D_t)$ as determined by the rating of the insurer on risk, then we can crudely approximate that the required premium that would be required for an insurance-linked CDS spread as:

$$P_t = P(D_t) \cdot (E(L_{t-1}) + E(\pi_t^*))$$

and linking back to our original diagram, this could be reflected as:

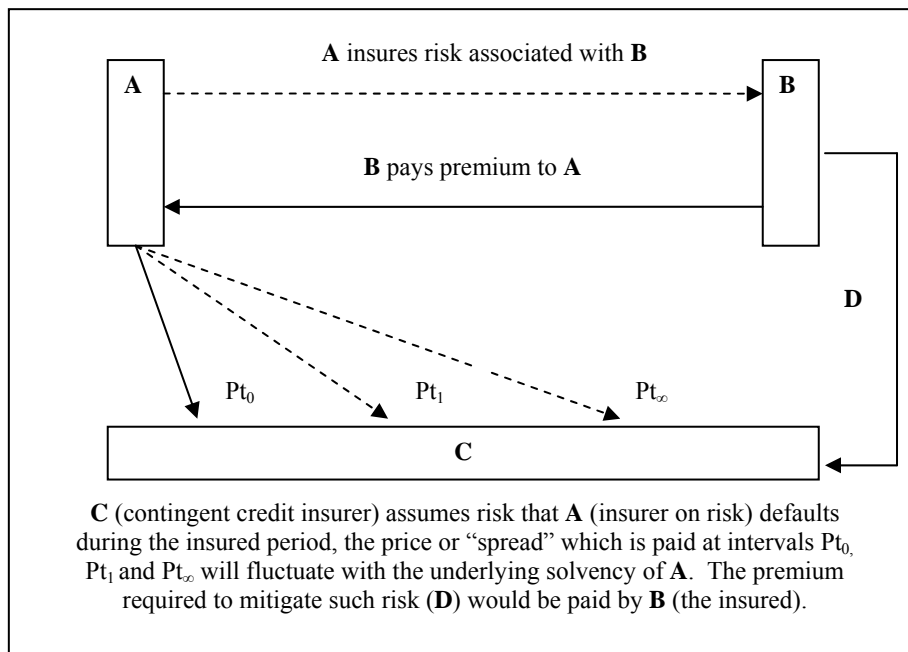


Figure 5: how an insurance-linked CDS would work

Note that the structure of the insurance-linked CDS (contingent credit insurance) captures the need to have an insurable interest in the underlying contract by only allowing the insured to pay premium to the contingent credit insurer. This is fundamental to the product as discussed in Section 4.2 above where we discussed the impact of insurance law on such a product. Also note that the contingent credit insurer must have a credit rating of at least A- for this arrangement to maintain any loan requirements but it is somewhat beyond the

scope of this paper to assess the impact of a contingent credit insurer itself becoming downgraded.

It therefore seems that it is possible to apply the basic principles of credit default swaps to insurance contracts to generate what we define as contingent credit insurance. In the following Section we look at how such a structure requires comparatively little premium, offsetting the cost inefficiencies outlined in Section 3.3.

4.4.A cost effective solution

Taking our equation from Section 2.6 above, it is apparent that the premium required to offset the risk of insurer default is comparatively minor this is because we multiply one small probability by another: the risk of default in a given period and the risk of a claim occurring in a given period. In this Section we discuss how such a small premium might be considered to be a more commercially viable option than replacing an existing market.

Firstly, we need to look at a potential scenario that would require the application of our product. Let us assume that the underlying insurance contract is a construction policy, issued on a 3.5 year period and placed with markets that, at the outset, met the minimum requirement of a rating from AM Best of A-. Six months in to the construction, one of the insurers Royal and Sun Alliance has a major loss and is downgraded by AM Best to B++.

Hypothetical example:

Construction All Risks Insurance, 3.5 year period

Sum Insured US\$100,000,000

Premium Rate 0.5% net of brokerage (the equivalent of $E(L_{t-1}) + E(\pi_t^*)$)

Markets Used

Insurer	Line	Rating (AM Best)
Allianz Global	20%	A+ Stable
Swiss Re	17%	A Stable
Hannover Re	19%	A Stable
Munich Re	20%	A+ Stable
Glacier Re	12%	A- Stable
Royal and Sun Alliance	12%	B++ Stable (Originally A-)
Total	100%	

Crude Premium Calculation

1. RSA write 12%²⁰ which equates to USD 12,000,000 x 0.005 = USD 60,000 premium
2. Risk of impairment for insurance company in 3-year period = 2.89% as shown from AM Best's Impairment Probability table below:

²⁰ Note that insurance is based on each underwriter insuring his percentage and that there is no joint-and-several liability for losses (Gow, W. (1900) Marine Insurance, a handbook, London MacMillan)

Rating	1-year (%)	2-year (%)	3-year (%)	4-year (%)	5-year (%)
A++/A+	0.06	0.20	0.36	0.53	0.70
A/A-	0.20	0.61	1.14	1.68	2.30
B++/B+	0.75	1.80	2.89	4.24	5.66
B/B-	2.09	4.30	6.38	8.24	10.21
C++/C+	3.44	5.73	8.55	11.29	13.64
C/C-	6.08	9.54	12.08	14.64	17.28
D	7.38	12.42	17.23	21.50	25.62

3. Accept premium for USD 60,000 x 0.0289 = USD 1,734 + [$E(\pi_3^*)$]

As we discover, even with a sum insured of USD12,000,000 and a period of 3 years, the premium generated is only USD2,000 – which we hypothesise to be less expensive than market replacement.

Some observations here might include noting that a rating reflects a point in time and there may well be some correlation between being downgraded and the road to insolvency. This would have to be further explored to determine whether there was a potential “snowball” effect of being further downgraded. On a similar note, insurer with ratings at the A++ and A+ levels seem to have the same probability of default which might imply some margin of error.

In the next Section we look at the benchmark insurance companies use to measure the return on equity margin required to substantiate pursuing a new venture such as this.

5. Underwriting Issues

In the following two Sections we look at underwriting issues before and after a loss.

5.1. Pre-loss underwriting issues

5.1.1. Hurdling return on equity requirements

We presume that the individual levels of premium generated by enhancing single contracts would not be particularly attractive to an insurance company. In this Section we therefore look at the extent to which our product could become competitive, compared to alternative lines of insurance.

The insurance industry uses mean and variance to describe uncertain random variables and in particular, the Premium Principle is used to calculate the average claim on an insurance policy. Such calculations are further enhanced over greater volumes of business as the law of large numbers suggests that as the number of similar risk increases to infinity the average

claims distribution is more reliable. Insurers use this mean claims distribution to form the basis for assessing whether new ventures should be pursued: the more an insurer can charge in excess of the mean claims distribution, the greater the return on equity²¹.

$$\text{Return on Equity (ROE)} = \frac{\text{Net Income}}{\text{Shareholder's Equity}}$$

On discussing the required level of return on equity general insurers would expect to generate on credit insurance with active trade credit underwriters²², we find that a typical return on equity lies in the 8-10% range. This would imply that based on range of options that an insurer can choose from to generate returns, the hurdle rate of return must lie above 10% to even consider a new venture.

In our case, the premium charged: P_t would include the calculation of the risk related premium as determined in our equation above and an additional loading factor for: a) the potential uncertainty of claims and b) the convenience of not having to replace a market. We suggest that this loading factor should be at least equivalent to the hurdle rate at which other ventures an insurer could pursue to generate revenue:

$$P_t > 10\% \text{ ROE}$$

Which would be achieved by suitably loading the premium charged for contingent credit insurance by capitalising on the “convenience” of supplying an additional product to existing insurance arrangements which would be comparatively most cost effective than dealing with the inefficiencies reiterated from Section 3.3:

1. The existing insurer may not agree return of any premium;
2. The application of a “downgrade clause” which commonly specify an A- rating as the benchmark below which the insured is entitled to invoke cancellation²³ (examples of such clauses can be found in Appendix 2) allows return of premium to the insured, calculated on a pro rata basis - which may give rise to a situation where the pro-rata premium rebate is not sufficient premium to replace the market;
3. Additional brokerage may be incurred;
4. Advice given to financiers for a fee/ financiers costs may be significant in dealing with the issue;
5. An alternative market may not exist; and
6. Time delays are incurred; and
7. Quality of cover may deteriorate as insurers try to limit cover based on possible claims experience.

Therefore, although the underwriter can distribute this product at a very high profit margin, its cost proves to be better than alternative options and hugely cheaper than a basis point increase in loan repayments. In the next Section we look at the position of such an insurer in the event that a claim is actually triggered.

²¹ Investopedia.com available at;

<http://www.investopedia.com/features/industryhandbook/insurance.asp>

²² The author has discussed such matters with Kiln Group and ACE European Group.

²³ Article by Simon Kilgour, partner, Reynolds Porter Chamberlain LLP, available at:

<http://www.inhouselawyer.co.uk/index.php/insurance/6950-entire-agreement-clauses-excluding-earlier-agreements-and-representations>

5.2. Post-loss underwriting issues

In a typical trade credit insurance policy, Insolvency means any of the following steps having been taken:

- a) a court, with jurisdiction over the Debtor's affairs, under the bankruptcy or insolvency laws of the Debtor's country, has made a bankruptcy or administration order, a composition or an order for the winding-up of the Debtor; or has approved an effective resolution for the voluntary winding-up of the Debtor;
- b) has made binding a compromise or arrangement on all or substantially all of the Debtor's trade creditors; a receiver, trustee, administrator, liquidator or similar representative has been appointed on behalf of debenture holders or other creditors of the Debtor; or
- c) such circumstances exist which, in Underwriters' opinion, are equivalent to any of the above.

It is envisaged that our contingent credit insurance would have a similar operative clause and as such we need to investigate what would happen in the event that our policy is triggered, starting subrogation rights post-loss.

5.2.1. Making potential recoveries

In typical trade credit insurance policies there is the following clause:

“Subrogation

After a Loss has been paid, Underwriters shall be subrogated to all of the Insured's rights of recovery against any entity and the Assured shall do or cause to be done whatever is necessary to secure such rights. It is a condition precedent to liability under this policy that the receivables and related security to which Underwriters may be subrogated, shall not be subject to any lien, security interest or other third party claim superior to that of Underwriters.”

In this Section we show that through the insurance doctrine of subrogation, the counterparty would also step into the shoes of the insured and have all rights of recovery against the original insurer in default.

Such subrogation rights would mean that the counterparty, upon paying a claim, have some level of recourse against the insurer in default. Figure 6 below represents what this recovery might look like being no repayment, partial repayment or full repayment.

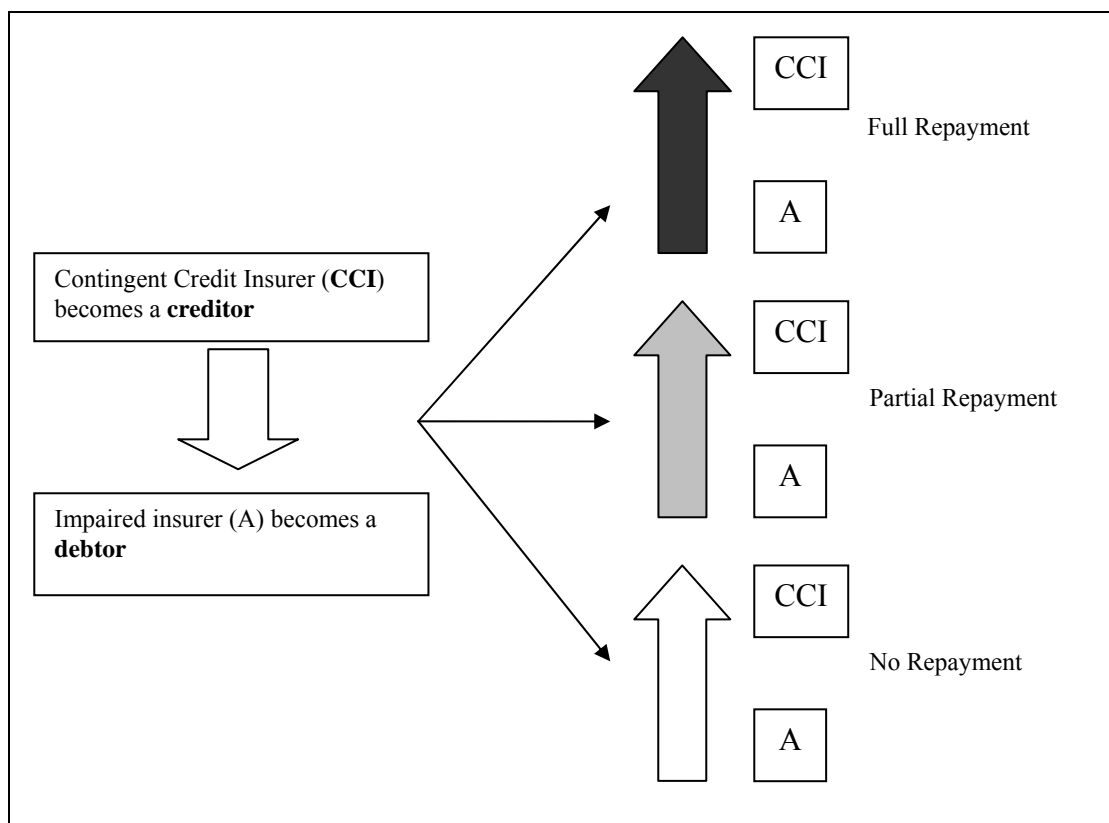


Figure 6: Adapted from Dickinson, C. (2009) Lecture Notes

As suggested by Figure 6, it seems likely that some recovery could be made post loss and although determining what the rate of recovery would be is beyond the scope of this paper we can assume that if a) we provide contingent credit insurance on the basis that we load premium for convenience purposes; b) that such loading generates enough return for an insurer to choose to provide contingent credit insurance against an alternative venture then c) the very fact that either a partial or full recovery could be made only ameliorates the position of the contingent credit insurer²⁴.

In the following Sections we look at how the chance of a recovery is increased significantly by the hierarchy of claims recoveries the insured would have had against the insurer, now subrogated to the contingent credit insurer.

5.2.2. The hierarchy of claims on residual assets

In considering the potential recovery able to be made by the contingent credit insurer after a claim had been made, we need to consider how any outstanding claims against the underlying insolvent insurer are treated by an administrator.

At the point where such an insurer is found to be suitably deficient, there are three options available as insolvency proceedings: liquidation, administration or through a scheme of arrangement.

²⁴ As a side issue, we assume that the insured would benefit from claims being paid before any recoveries were made. This could be a very time-consuming process and any contingent credit insurer should ensure they have sufficient cash flow to sustain the recovery period.

1. Liquidation

In UK law, under the Insolvency Act 1986²⁵, a liquidator would be appointed to take control of the company to try to match any outstanding liabilities with any remaining assets.

2. Administration

If there is more potential for the insurer to revive its credit status, an administrator can be brought in to try and rescue the company in an attempt to continue trading. The role of an administrator is to get the company out of trouble and trading again if possible. An administrator will also try and get a better “result for the creditors than would be possible if the company was wound up”²⁶.

3. Schemes of Arrangement

This procedure attempts to identify remaining liabilities and to find ways to mitigate them, this is known as “run-off” or “restructuring”. Such a practice includes passing on residual liabilities to third parties (usually insurance companies) in an attempt to protect any residual shareholder value²⁷ and is also known as a Part VII portfolio transfer. “A Part VII insurance portfolio transfer mechanism is a means to transfer liabilities and assets by way of a court sanctioned novation of business, implemented under Part VII of the Financial Services and Markets Act 2000”²⁸.

Taking the worst case scenario, liquidation, the most important issue to establish is the priority ranking of insurance debts and for this we need to look at the UK’s Statutory Instrument 2004 No. 353; The Insurers (Reorganisation and Winding Up) Regulations 2004.

Once an insurer is in liquidation or administration, UK Government Regulation categorises the order of claims priority each claimant has over any residual assets. In Part IV – Priority of Payment of Insurance Claims in Winding Up Etc. of the Insurers (Reorganisation and Winding Up) Regulations 2004, the priority is given as follows:

1. Preferential debts
2. Insurance debts
3. All other debts

“Preferential debts” are defined to be a) contributions to occupational pension schemes, etc. and b) remuneration etc. of employees.

“Insurance debts” means a debt to which a UK insurer is, or may become liable, pursuant to a contract of insurance, to a policyholder or to a person who has a direct right of action against that insurer, and includes any premium paid in connection with a contract of

²⁵ Insolvency Act 1986, 1986 CHAPTER 45, UK Statutes Crown Copyright

²⁶ Business Link website, available at:

<http://www.businesslink.gov.uk/bdotg/action/detail?type=RESOURCES&itemId=1073792363>

²⁷ James, D.; Miles, N and Goodlud, S (2008) Part VII Transfers A Practical Guide, BD Communications (London) LLP

²⁸ Quoting from James, D. (an actuary), available at:

<http://www.runoffbusiness.com/Resources/ROB%208%20PortfolioTransfersB.pdf>

insurance (whether or not that contract was concluded) which the insurer is liable to refund²⁹.

Based on the above, we suggest that the position of the credit risk counterparty would be somewhat better than that of a traditional credit insurer i.e. that because of the insolvency process associated with winding-up an insurer, policyholder protection prioritises claims liabilities over and above any others further confirming the likelihood of either full or partial repayment. In the next Section we further investigate how government regulation also increases the likelihood of recovery.

5.2.3. Government regulation

Government regulation has become more important in reducing the possibility of consumer loss or insurance market disruption³⁰. In this Section we take a quick look at what provisions UK and European regulators have enforced to protect policyholders from insurer default, and then look at what regulatory changes we are likely to see in the near future.

In the UK, the insurance industry is regulated by the Financial Services Authority ("FSA"), whose key function is "to identify emerging insurance risks and to co-ordinate ways to mitigate these"³¹. The FSA is constantly reviewing the ability of an insurer to meet its claims obligations and insurers are required to send an "insurance return" annually to the FSA.

To enhance such a process, the FSA has looked to organically embrace a central part of the European Commission's Financial Services Action Plan³²- Solvency II. Solvency II is based on three tiers, or pillars, of requirements: Pillar I sets out the quantitative requirements that an insurer must use: the methodology for the calculation of technical provisions, minimum capital requirements (MCR), solvency capital requirements (SCR) and investment policy. Pillar II is more of an overview of the typical internal governance and risk management requirements and Pillar III is concerned with disclosure and transparency to reinforce market mechanisms³³.

Such regulation seeks to set the basis for prudent insurance company management and according to Allen&Overy LLP, it is likely that "the FSA will engage with the insurer in intensive discussions as to the best means of avoiding any likelihood that the insurer may breach its regulatory (including capital adequacy requirements)³⁴".

Overall we find that government regulation, imposed to protect policyholders, is likely to further enhance the position of the contingent credit insurer as the same policyholder protection would be afforded to the contingent credit insurer through subrogation rights following a claim. In the next Section we take a look at what actually happens when an insurer defaults and investigate some of the protection given to policyholders.

²⁹ Note that this is only the position from UK Law, other jurisdictions may differ.

³⁰ FSA website, Solvency 2, available at:

<http://www.fsa.gov.uk/pages/About/What/International/solvency/index.shtml>

³¹ The Financial Services Authority website, available at:

<http://www.fsa.gov.uk/Pages/About/Teams/Insurance/index.shtml>

³² The European Commission website, available at:

http://ec.europa.eu/internal_market/finances/actionplan/index_en.htm

³³ Swiss Re, Sigma No. 4/2006, Solvency II: an integrated risk approach for European insurers, 12 May 2006

³⁴ Jarvis, P. and Brown, M. (2008) Insurer Insolvency in the UK, Allen&Overy LLP Bulletin September 2008.

6. Market Size

We have already established that the provision of contingent credit insurance, at least in theory, would seem to be more convenient and perhaps more cost effective than replacing an existing market. In this Section we discuss the potential market size, noting that exact quantification is difficult.

6.1. Primary Market – Project Finance

The first and perhaps most obvious potential market is the Global Project Finance market. Project Finance implies debt that is supported by the cash flows of a Project and not the companies that sponsor it and it is therefore highly likely that this particular debt financing market would be interested in contingent credit insurance. Figure 5 below shows the volume and monetary values of Project Finance transactions over the last few years.

Year	Number Of Deals	Total Size of Deals (\$)
2009	388 (anticipated)	105,567,000,000
2008	689	250,557,100,000
2007	334	127,858,900,000
2006	618	265,728,000,000
	2029	749,711,000,000

Figure 7: Global Project Finance Statistics 2006-2009

Project Finance Loan Tenors are usually in the 15-20 year category which would imply that from Project Finance transactions alone there are more than 7000 projects with outstanding debt arrangements at any one time³⁵ and with a total outstanding loan value well in excess of US\$ 1,000,000,000,000 which in turn confirms a far higher value for the actual sums insured. Similarly, as the average loan value is in the region of US\$ 60,000,000 it is most likely that multiple insurers are used per project.

6.2. Secondary Market – General Corporate Debt

We identified in Section 3.2 that under Basel II requirements (Annex 4 - Supervisory Slotting Criteria for Specialised Lending) the qualities of borrowers' insurance arrangements are taken into consideration. This product could be used to help reduce the cost of borrowing for corporate entities; the market size for this could be significant.

6.3. Other Markets

Structured finance, collateralised loan obligations and collateralised bond obligations could potentially all benefit from contingent credit insurance when there is recourse to an underlying entity or asset. Ship and aircraft financing may also benefit from this arrangement.

The exact market size for contingent credit insurance is still largely incalculable. Insurer downgrades are difficult to predict and although in Appendix 4 we give an indication that 52 companies were downgraded in 2008, this does not consider all rating agencies and we cannot be sure which insurers would have underwritten property/ asset insurance relative to the amount of outstanding loans. In the next Section we identify and discuss potential issues with our product.

³⁵ Project Finance International, Full Year League Tables 2007, 2008 and 2009, Reuters

7. Potential Issues

In considering the implementation of this new product, there will inherently be some problems. In this Section we look at systemic risk as well as some other market issues so as to anticipate some potential future issues that may arise.

7.1. Systemic risk

"Systemic risk" refers to the likelihood and degree of negative consequences to the larger body³⁶. Our premium calculation depends on the fact that the two events: insurer default and an insurance claim are likely to be mutually exclusive. In this Section we look at how systemic risk poses a threat to our product and comment on some of the inherent insurance industry mitigants.

Taleb (2007) introduces the concept of the "black swan"³⁷ which comments on the fact that it is not moderate uncertainty that causes market disruption but extreme uncertainty. Such extreme uncertainty could never be realistically calculated but we can look at two possible scenarios that might cause such market-wide disruption:

Scenario 1: Due to the increasingly complex and more interconnected global financial services system, small fluctuations in credit risk caused the global sub-prime meltdown that began in the summer of 2007³⁸. As we know, such an event has an impact on the capital markets which, in turn, affects investment returns and balance sheet strength for insurers. This may lead to market-wide insurer downgrades; and

Scenario 2: Systemic risk could also lie in the (re)insurance impact of a global catastrophe, for example a swine flu pandemic. An event at this global level could have major consequences for property and casualty (re)insurers relating mostly to business interruption losses. However, there could also be contingent losses felt from the decline in equity markets leading to "increased insolvencies that would lead to an increase in claims on credit insurance."³⁹ This is a real risk to a market-wide downgrade scenario.

Looking at Scenario 1, there is little evidence to suggest that property and casualty claims would increase as claims in this case are mutually exclusive from reserves. There is also no vulnerability of a "run on the bank"⁴⁰, as insurers do not hold people's money. Similarly, we know from Section 5.3 that government regulation requires a minimum level of capital and that such capital must be invested in a suitable manner as a balanced portfolio.

Looking at Scenario 2, we can assume that not only do insurers have some degree of contingency built into their portfolios, but that prudent insurers put certain precautions in place when facing global crises, for example Munich Re is countering the risk of a pandemic

³⁶ Property Casualty Insurers of America (2009) Systemic Risk, available at:

[http://www.pciaa.net/web/sitehome.nsf/lcpublic/392/\\$file/PCI_Systemic_Risk_Definition.pdf](http://www.pciaa.net/web/sitehome.nsf/lcpublic/392/$file/PCI_Systemic_Risk_Definition.pdf)

³⁷ Taleb, N. (2007) *The Black Swan: The Impact of the Highly Improbable*. New York: Random House

³⁸ Sullivan, R. (2008) Taming Global Village Risk, *Journal of Portfolio Management*, Summer 2008, v. 34, iss. 4, pp. 58-67

³⁹ Hyde, M. and Burden, R. (2009) Pandemic Risk, a Reinsurance Event, *Credit Suisse*

⁴⁰ Property Casualty Insurers of America (2009) Systemic Risk, available at:

[http://www.pciaa.net/web/sitehome.nsf/lcpublic/392/\\$file/PCI_Systemic_Risk_Definition.pdf](http://www.pciaa.net/web/sitehome.nsf/lcpublic/392/$file/PCI_Systemic_Risk_Definition.pdf)

by “analysing its overall exposure in detail (scenario analysis), defining suitable limits, and optimising the risk structure by transferring risk.”⁴¹

We can therefore assume that although there would generally seem to be little correlation between insurance claims and insurer insolvency, there are some situations whereby systemic risk could reach a level that causes significant problems for the contingent credit insurer.

We can take comfort from the fact that contingent credit insurance is not derived from the same basis as capital markets where in the last 20 years a “risk grew from fields of market capitalism which were fertilized with cheap and plentiful credit”⁴² but is embedded in the very nature of insurance, that of risk mitigation. In the next Section we look briefly at some other problems that the contingent credit insurer may face.

7.2.A list of some other issues

In this Section we consider some other issues that may cause problems:

7.2.1. Market forces

This product may be seen to help the poor management of insurance companies and may also be considered by market leaders to reduce the significance of their own good credit rating.

7.2.2. Premium rating

One part of our calculation relies on appropriate rating of the underlying insurance risk. A contingent credit insurer would need to be comfortable with the lead rating of the risk or surcharge for the perceived inaccuracy.

7.2.3. Brokerage size

As contingent credit insurance generates small premiums, any brokerage would also be similarly small which would not provide much of an incentive.

7.2.4. Discrepancy between rating agencies

One issue may be that the difference in assessment between the rating agencies may lead to uncertainty as to whether an insurer is downgraded or not. For example, on 7th July 2009 Oman Insurance Company was downgraded to BBB+ by Standard and Poor’s but at the same time had a rating of A from AM Best⁴³.

8. Conclusion

We started our discussion by noting that the risk of insurer insolvency lies with the company that buys insurance and that such risk is typically assessed by rating agencies such as Standard and Poor’s who essentially categorise such risk into bands from A to D. We then went on to study how the quality of a potential borrower’s insurance programme is considered by lenders wishing to provide debt-financing and particularly how such financing

⁴¹ Munich Re website, available at: <http://www.munichre.com/en/press/default.aspx>

⁴² Sullivan, R. (2008) Taming Global Village Risk, *Journal of Portfolio Management*, Summer 2008, v. 34, iss. 4, pp. 58-67

⁴³ Standard and Poor’s, Rating Update, July 9th 2009, Ratings Direct

required a borrower to procure and maintain insurance with insurers of a minimum rating of A- from Standard and Poor's, or other rating agencies.

Finding that this financing requirement created a problem when an insurer was downgraded mid-risk we noted that the borrower had the following options:

- a) To keep the same insurer and breach a loan covenant that could increase the interest rate on a loan; or
- b) To remove the insurer and replace the risk with a sufficiently rated market.

We found that if the insured decided to replace the market, several inefficiencies arise including that the return of any premium might not substantiate the cost of finding a replacement market; additional brokerage and advisory costs would be incurred; alternative markets may not exist and there would be time delays in the resolution of the matter. With either decision, we discussed that the process, comparative to the risk, was highly inefficient and costly.

Drawing on a solution found in the financial markets, we then took the underlying principles of a credit default swap and applied them to an insurance contract paying attention to insurance law restrictions that are partly prohibitive. This gave us the basis for an insurance product that would assume the risk of insurer default during the tenor of a loan and calculable through the following equation:

$$P_t = P(D_t) \cdot (E(L_{t-1}) + E(\pi_t^u))$$

Where $P(D_t)$ is the risk of insurer impairment during the policy period and $(E(L_{t-1}) + E(\pi_t^u))$ is the underlying reference policy premium.

We called our product contingent credit insurance.

Noting that this product would be an entirely new product, we went on to discuss pre and post-loss underwriting issues. We found that pre-loss, the underwriter would need to charge an additional amount of premium to meet typical return on equity requirements and that the overall premium rate should be in excess of a return of equity of 10%. This was entirely achievable because of the "convenience" that the product creates comparative to the inefficiencies outlined above. Post-loss we found that the position of the contingent credit insurer was further enhanced by the potential to make recoveries through the right of subrogation afforded to them by the insured, government regulation and the hierarchy of claims on residual assets.

We found that there is considerable demand for this type of product in the Project Finance market with over 7000 loans currently outstanding and an average loan size of US\$ 60,000,000, but we noted that the product contains an element of systemic risk that needs to be respected.

The financial services industry inherently contains considerable inefficiencies and this paper has identified and assessed one such inefficiency that stretches across both the banking and insurance sectors. This paper finds that although the chance that an insurer will not pay a claim is considered to have increased when a rating downgrade occurs, significant

protection is afforded to the policyholder that makes the likelihood of claims recoveries high; even when the insurer is in administration. However, such downgrades form an integral part of debt-lending criteria and the insured is required to remove a company that does not meet such criteria, whatever the cost. Our product provides a cost effective and efficient solution to this problem that allows the incumbent insurer to keep premium for the duration of the risk but maintains the rating requirement set out in a loan agreement, this arrangement causes minimal disruption and allows a considerable profit margin for the insurer willing to write such a product.

Looking forward, we find that contingent credit insurance is seemingly viable, profitable, legal and likely to change the insurance industry. However its expansion could be its downfall, as was seen in the credit default swap market, and sensible precautions should be taken to avoid failure including:

- a) applying limits on a downgraded insurer;
- b) applying limits on certain types of insurance cover;
- c) capping the amount of contingent credit insurance per asset;
- d) including fraudulent claims clauses; and
- e) adding other standard insurance policy clauses

This paper does not presume to be exhaustive, but provides the basis for further research in the subject area to refine and develop a real life solution. Such research would include developing a computer system to add to the transactional volume and increased convenience of the product and a full, detailed analysis of the key features of the market size.

Word Count: 8,325

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Appendix 1

Provisions Common to all Insurances typically found in a loan agreement:

Definition Section:

“Approved (Re)Insurer” means an insurer of recognised standing in the international insurance market which has an insurer financial strength rating from Standard and Poor’s of at least A- (or the equivalent from Best’s or Moody’s)

And then in a later section:

If, at any time, any Approved (Re)Insurer with whom the Material Insurances, are placed ceases to be an Approved (Re)Insurer, the Company or, shall procure that those Material (Re)Insurances (or parts thereof which are) placed with that Person are placed with an Approved (Re)Insurer within 90 (ninety) days from the date upon which the Company became aware of, or was notified that, such Person ceased to be an Approved (Re)Insurer.

Appendix 2

1. Downgrade Clause

In the event the security rating of a Reinsurer is downgraded at any time below "{Missing}" as issued by Standard and Poor's and/or "{Missing}" as issued by Bests, then the Reinsured shall have the option to reduce or terminate such Reinsurer's participation effective at any time on or after the date of the aforementioned downgrading. The effective date of the reduction or termination is to be advised by the Reinsured to the Reinsurer in writing and such effective date of reduction or termination shall not be prior to the date at which the Reinsured issues such written advice.

In the event of a Reinsurer's participation in this Contract being terminated, the Premium due to such Reinsurer for such terminated participation shall be calculated pro rata as to time on risk of the Minimum Premium for the full period of this Contract. However, in the event of the paid loss(es) attributable to the Reinsurer's participation exceeding the aforesaid pro rata Minimum Premium, then the total Premium (disregarding any Reinstatement Premium) shall be increased to an amount equivalent to the said paid loss(es) but not exceeding the fully adjusted Premium attributable to the Reinsurer's original participation in respect of the full period of this Contract. The balance of the Premium due to either party is to be settled within 30 calendar days following the effective date of the termination. In the event of any change to the paid losses, any applicable change to the Premium is to be settled simultaneously with the claim settlement or refund.

In the event of a Reinsurer's participation in this Contract being reduced, the Premium due to such Reinsurer for its participation in the full period of this Contract shall be calculated by applying the Reinsurer's respective participation for each period to the applicable pro rata premium for the respective period (being pro rata as to time on risk of the fully adjusted Premium for the full period of this Contract). The payment terms in force prior to the Reinsured exercising their option to reduce will continue to apply. If applicable, any Return Premium due to the Reinsured in respect of previously settled instalments is to be settled within 30 calendar days following the effective date of the reduction.

However, in the event of the paid loss(es) attributable to the Reinsurer's participation exceeding the aforesaid pro rata Premium, then the total Premium (disregarding any Reinstatement Premium) shall be increased to an amount equivalent to the said paid loss(es) but not exceeding the fully adjusted Premium attributable to the Reinsurer's participation (prior to reduction of the Reinsurer's participation) in respect of the full period of this Contract and any balance due is to be settled within 30 calendar days following the effective date of the reduction. In the event of any change to the paid losses, any applicable change to the Premium is to be settled simultaneously with the claim settlement or refund.

In the event of a Reinsurer's participation in this Contract being terminated or reduced, any Reinstatement Premium shall be the additional premium amount for the full period of this Contract as detailed in the REINSTATEMENT CLAUSE, to which will be applied the Reinsurer's participation rate applicable to the loss giving rise to the reinstatement. The foregoing additional premium shall be based on the Indemnity of this Contract, lesser amounts being calculated on a pro rata basis.

Where the fully adjusted Premium or Minimum Premium is used as the basis for calculating the Premium, such Premium will initially be based upon the Deposit Premium and will be subsequently adjusted, as applicable. Any change to the Premium due to either party is to be settled within 30 calendar days of the date of agreement of the applicable Premium Adjustment.

As used herein "the full period of this Contract" refers to the period of this Contract irrespective of the Reinsured exercising their option to terminate or reduce, "Standard & Poor" refers to "Standard & Poor's Insurance Rating (a division of the McGraw-Hill Companies)" and "Bests" refers to "AM Best Company Inc.", or successors of both.

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2. Downgrade & Collateralisation Clause (amended)

In the event the security rating of a Reinsurer is downgraded at any time below "A Minus" as issued by Standard & Poor and/or "A Minus" as issued by Bests, then the Reinsured shall have the option to reduce, terminate the Reinsurer's participation effective at any time on or after the date of the aforementioned downgrading. The effective date shall be advised by the Reinsured to the Reinsurer and shall not be prior to the date at which the Reinsured issues such written advice.

3. Security Authorisation Clause

The Reinsured at its option shall have the right to terminate a Reinsurer's participation immediately if the security rating of the Reinsurer is downgraded at any time below "A-Stable outlook" by Standard & Poor's Insurance Rating or by AM Best Company Inc. This option may be exercised at any time on or after the date of the aforementioned downgrading.

Notice will be given to the Reinsurer through the Intermediary, and the termination will take effect upon receipt of the notice by the Reinsurer/Intermediary, but no later than five (5) working days after notice has been sent by the Reinsured.

Should a Reinsurer's participation in this Contract be terminated due to the application of the above provision, the Reinsurer shall remain liable for losses occurring up to and including the date of termination, and the Reinsurer shall incur no liability for losses occurring subsequent to the effective date of the termination. The Reinsurer shall allow a return of premium to the Reinsured, calculated on a pro rata basis

MM No. 2433
2nd January 2007

Appendix 3

General Conditions in a Trade Credit Insurance policy

a) Limits of Liability

All limits of liability under this policy and any preceding or future policy issued by Underwriters to the Assured are non-cumulative. No more than one limit of liability shall be in effect for any one Debtor, regardless of the number of years in force of this policy, or any prior or subsequent policy.

b) Release of liability

Underwriters shall be released from all liability under this policy six months after the last Due Date of Insured Goods, except for Debtors reported to Underwriters in accordance with Section 2., Overdues and Claims, b) Reporting

c) Action against Underwriters

No action arising out of policy may be brought against Underwriters unless such action is commenced within twenty-four months following the last day of the Policy Period.

d) Governing law and arbitration

The laws of England shall govern the construction, validity and performance of this policy. Should any dispute arise between the Assured and Underwriters under this policy, the matter in dispute shall be submitted to the London Court of International Arbitration, in accordance with its then prevailing commercial arbitration rules.

The award rendered by the arbitrator(s) shall be final and binding upon the parties, subject to the Policy Limit, and judgement thereon may be enforced by any court having jurisdiction.

e) Assignment

The Assured shall not assign or transfer this policy or its benefits or obligations to any other party. Any claim payable under this policy may be paid, after adjustment with the Assured, to a named loss payee if such action is agreed by Underwriters in writing and evidenced by Endorsement.

f) Cancellation

The Assured is not permitted to cancel this policy. Underwriters are not permitted to cancel this policy, except for non-payment of premium as per LSW 3000 (attached) or pursuant to the paragraph g), Change in composition of the Assured:

In the event of cancellation, Underwriters shall notify the Assured by posting written notice, stating when it shall be effective. Upon the effective date of cancellation, the policy shall be voided and no Loss shall be eligible for payment. The posting of such notice to the Broker specified in the Schedule shall be sufficient proof of notice.

g) Change to the Assured

The Assured shall notify Underwriters immediately in writing, if, during the Policy Period, there is a material change to the business of the Assured or its ownership. If the policy is cancelled in accordance with paragraph f) above as a result, Underwriters shall make a pro-rata return of premium.

h) Fraudulent claims, concealment of information

If the Assured makes a fraudulent claim for Loss, or if the Assured knowingly conceals any material fact, this policy shall become void and all claims and premium paid shall be forfeited. The Assured shall return all payments made by Underwriters, with interest thereon, upon demand.

i) Assured's records

Underwriters may at any time examine, or require the Assured to produce, copies of any records or documentation, in whatever form and wherever situated under the Assured's control, pertaining to this policy or to any transaction between the Assured and the Debtor.

The Assured shall, at Underwriters' request, take all reasonable steps to obtain for Underwriters any information in the possession of a third party pertaining to any Loss under this policy.

j) Notices

All notices provided for in this policy shall be in writing (including by facsimile transmission) and given to the Assured at the address specified in the Schedule or to Underwriters at 3 Minster Court, Mincing Lane, London, EC3R 7DD.

k) Other insurance

The insurance provided under this policy shall be excess over any other valid bond, insurance or other indemnity. The Assured shall inform Underwriters of any bond, insurance or other indemnity in place at the inception of the policy and as they may arise during the Policy Period.

l) Contracts (Rights of Third Parties) Act 1999 Clarification Clause

A person who is not a party to this contract has no right under the Contracts (Rights of Third Parties) Act 1999 to enforce any term of this contract but this does not affect any right or remedy of a third party which exists or is available apart from that Act.

m) Payment of Premium (LSW 3000)

The Insured undertakes that premium will be paid in full to underwriters within 60 days of inception of this policy (or, in respect of instalment premiums, when due).

If the premium due under this policy has not been so paid to Underwriters the 60th day from the inception of this policy (and in respect of instalment premiums, by the date they are due) Underwriters shall have the right to cancel this policy by notifying the Insured via the broker in writing. In the event of cancellation, premium is due to Underwriters on a pro rata basis for the period that Underwriters are on risk but the full policy premium shall be payable to Underwriters in the event of a loss or occurrence prior to the date of termination which gives rise to a valid claim under this policy.

It is agreed that Underwriters shall give not less than 15 days prior notice of cancellation to the Insured via the broker. If premium due is paid in full to Underwriters before the notice period exposure, notice of cancellation shall automatically be revoked. If not, the policy shall automatically terminate at the end of the notice period.

Unless otherwise agreed, the Leading Underwriter (and Agreement Parties if appropriate) are authorised to exercise rights under this clause on their own behalf and on behalf of all Underwriters participating in this contract.

If any provision of this clause is found by any court or administrative body of competent jurisdiction to be invalid or unenforceable, such invalidity or unenforceability will not affect the other provisions of this clause, which will remain in full force and effect.

Where the premium is to be paid through a London Market Bureau, payment to Underwriters will be deemed to occur on the day of delivery of a premium advice note to the Bureau.

Appendix 4

Standard and Poor's Downgrades 2008

Insurer	Domicile	Date of downgrade	Downgraded to	Previous rating
Aetna Health Inc. (a Massachusetts corporation)	United States	25-Mar-08	NR/--/--	A/Stable/--
Aetna Health Inc. (an Ohio corporation)	United States	25-Mar-08	NR/--/--	A/Stable/--
AIG Global Trade & Political Risk Insurance Co.	United States	08-May-08	NR/--/--	AA+/Negative/-
AIG Life Insurance Co. of PR	United States	08-May-08	NR/--/--	AA/Negative/--
AIU Insurance Co. Taiwan	Taiwan	08-May-08	NR/--/--	AA+/Negative/-
American Merchants Casualty Co. (Unsolicited Ratings)	United States	25-Jul-08	NR/--/--	Api/--/--
AXA Insurance Ltd.	Ireland	08-Aug-08	BBB+/Stable/--	A-/Stable/--
Belair Insurance Co. Inc.	Canada	03-Nov-08	NR/--/--	A+/Stable/--
Blue Cross & Blue Shield of Nebraska	United States	31-Jul-08	NR/--/--	A/Stable/--
BluePoint Re Limited	Bermuda	14-Aug-08	R/--/--	A/Negative/--
Companhia de Seguros Fidelidade - Mundial S.A. (Unsolicited Ratings)	Portugal	31-Oct-08	NRpi/--/--	Api/--/--
Delta Dental Plan of Minnesota	United States	28-Apr-08	NR/--/--	AA-/Stable/--
Fennia Mutual Insurance Co. (Unsolicited Ratings)	Finland	23-Jul-08	BBBpi/--/--	Api/--/--
Fireman's Fund Insurance Co. of Missouri	United States	06-Oct-08	NR/--/--	A+/Positive/--
Fortis Insurance Ltd. (Unsolicited Ratings)	United Kingdom	07-Oct-08	BBBpi/--/--	Api/--/--
GF-Forsikring A/S (Unsolicited Ratings)	Denmark	22-Dec-08	BBBpi/--/--	Api/--/--
Harbor Point Reinsurance US Inc	United States	13-Feb-08	NR/--/--	A-/Stable/--
Humana Health Plan of Ohio Inc.	United States	14-Apr-08	BBB+/Stable/--	A-/Stable/--
Humana Insurance Co. of KY	United States	14-Apr-08	BBB+/Stable/--	A-/Stable/--
ING Insurance Co. of Canada	Canada	03-Nov-08	NR/--/--	A+/Stable/--
ING Novex Insurance Co. of Canada	Canada	03-Nov-08	NR/--/--	A+/Stable/--
Lahivakuutus Keskinainen Yhtio (Unsolicited Ratings)	Finland	22-Dec-08	BBBpi/--/--	Api/--/--
Landmark American Insurance Co.	United States	25-Jul-08	NR/--/--	A-/Stable/--
Legal & General Insurance Ltd. (Unsolicited Ratings)	United Kingdom	28-Jan-08	BBBpi/--/--	Api/--/--
Life Investors Insurance Co. of America	United States	02-Oct-08	NR/--/--	AA/Negative/--
MBF Australia Ltd.	Australia	30-Dec-08	NR/--/--	A-/Stable/--
Medibank Private Ltd.	Australia	30-Dec-08	NR/--/--	A-/Stable/--
Midway Insurance Co. of IL	United States	06-Oct-08	NR/--/--	A+/Positive/--
Milwaukee Casualty Insurance Co.	United States	03-Sep-08	NR/--/--	A/Stable/--
Mutuelle de Poitiers Assurances (Unsolicited Ratings)	France	21-Oct-08	BBBpi/--/--	Api/--/--
Nationale-Nederlanden Schadeverz. Mij. N.V. (Unsolicited Ratings)	Netherlands	28-Mar-08	NRpi/--/--	Api/--/--
Nordic Insurance Co. of Canada	Canada	03-Nov-08	NR/--/--	A+/Stable/--
Onderlinge waarborgmaatschappij TVM UA (Unsolicited Ratings)	Netherlands	11-Apr-08	BBBpi/--/--	Api/--/--
PartnerRe S.A.	France	23-Jul-08	NR/--/--	AA-/Stable/--
PMI Guaranty Co.	United States	08-Sep-08	NR/--/--	A-/Watch Neg/--
RSUI Indemnity Co.	United States	25-Jul-08	NR/--/--	A-/Stable/--
RVS Schadeverzekering N.V. (Unsolicited Ratings)	Netherlands	28-Mar-08	NRpi/--/--	Api/--/--

Schweiz. Lebensversicherungs-und Rentenanstalt Niederlassung fuer Deutschland (Swiss Life German Branch)	Germany	12-Nov-08	BBB+/Stable/--	A-/Negative/--
Security National Insurance Co. (TX)	United States	10-Sep-08	NR/--/--	A/Watch Neg/-
Shipowners' Mutual P&I Association (Luxembourg) (Unsolicited Ratings)	Luxembourg	03-Dec-08	BBBpi/--/--	Api/--/--
Soc. Suisse d'Ass. generales sur la Vie Humaine (Swiss Life French Branch)	France	12-Nov-08	BBB+/Stable/--	A-/Negative/--
Swiss Life/Schweizerische Lebensversicherungs- und Rentenanstalt	Switzerland	12-Nov-08	BBB+/Stable/--	A-/Negative/--
Sygeforsikringen danmark (Unsolicited Ratings)	Denmark	11-Apr-08	BBBpi/--/--	Api/--/--
Tokio Marine & Fire Insurance Co. (Singapore) Pte. Ltd. (The)	Singapore	01-Jul-08	NR/--/--	AA-/Stable/--
Trafalgar Insurance Co. of Canada	Canada	03-Nov-08	NR/--/--	A+/Stable/--
Transamerica Life Canada	Canada	20-Mar-08	BBB/Stable/--	A-/Negative/--
Transamerica Occidental Life Insurance Co.	United States	01-Oct-08	NR/--/NR	AA/Negative/A-1+
Transcontinental Insurance Co.	United States	03-Jan-08	NR/--/--	A-/Stable/--
Trinity Universal Insurance Co. of KS	United States	03-Sep-08	NR/--/--	A/Stable/--
Vakuutusosakeyhtio Eurooppalainen (Unsolicited Ratings)	Finland	10-Apr-08	NRpi/--/--	Api/--/--
Valiant Insurance Co.	United States	11-Jan-08	NR/--/--	AA-/Stable/--
Westport Insurance Corp.	United States	15-Jan-08	NR/--/--	AA-/Stable/--