

**INTERNATIONAL ASSOCIATION OF
INSURANCE SUPERVISORS**



**IAIS PAPER ON CREDIT RISK TRANSFER
BETWEEN INSURANCE, BANKING AND OTHER
FINANCIAL SECTORS
PRESENTED TO THE
FINANCIAL STABILITY FORUM**

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This document was prepared by the Investments Subcommittee in consultation with members and observers.

Paper on Credit Risk Transfer between Insurance, Banking and Other Financial Sectors

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Background and context

1. Over the past 2 years there has been increasing interest by regulators and other market bodies in the subject of credit risk transfer between insurance companies, banks and other financial institutions. This interest reflected perceived very rapid growth in credit derivatives, securitisation and insurance of credit risk. This in turn led to a desire to understand what the

drivers for such transactions are and whether there are any adverse systemic or supervisory implications.

2. In 2001 the Financial Stability Forum asked both the IAIS and the CGFS¹ to consider the issues and the possible implications for financial stability. This report outlines the conclusions reached by the IAIS. It intends to present comprehensive information to IAIS members and observers, adding further statistics and analysis to the initial conclusions presented to IAIS members in October 2002. The focus of the work carried out and the conclusions are broader than just implications for stability, and focus in particular on issues for both insurance firms and insurance supervisors as a result of growth of credit risk transfer activities. The working group of the CGFS is more directly concerned with financial stability issues and published² the results of its work separately.

Methodology and approach

3. The IAIS approached the issue by asking the following questions:

- *What is the perceived problem with credit risk transfers? And also how big is the problem?* – in this regard the sub-committee looked at some data to get a feel for the possible order of magnitude at individual company level as well as external surveys which purported to show the level of magnitude at a macro economic level.
- *What are the risks to policyholders?* – in this context, as insurance regulators and supervisors the sub-committee looked primarily at issues for insurers, although it did also consider a comparison of capital treatments for credit risk between insurers and other sectors.

4. As well as considering the potential issues that could impact financial stability the sub-committee also examined the risk management issues for insurers and the supervisory issues for regulators.

5. Most of the existing data on credit risk transfers relates to overall market statistics, and does not provide deeper insight into underlying transactions. Therefore it is difficult to gather definitive global data on credit derivatives, and credit risk transfer transactions more generally. This is primarily because it is not clear how they should be reported - there are no standardised asset categories for reporting these products when used as investments by insurers. Moreover there is a lack of definitional boundaries in credit risk transfer activities given that many activities straddle what would traditionally be considered as ‘underwriting’ or ‘investment’ activities. This further complicates reporting. Even so, from the information available, it is clear that the direction and trend are broadly consistent and show that there has been a substantial increase in the levels of activity, and that the amounts involved are not insignificant.

¹ Committee for the Global Financial System – a discussion forum for the central bank community on financial stability questions

² CGFS Publications No 20: “Credit risk Transfer”, January 2003

6. To overcome the problems in interpreting the market level data, the IAIS designed a survey to collect data at the firm level. The survey³ was conducted in Europe, Africa, Canada and Asia. The results of this survey, which comprised 35 firms, forms much of the basis of this paper. Unfortunately, the US survey results were provided too late to be included in the paper. However, preliminary review of the US results indicates no inconsistencies with the conclusions of the paper. Further, difficulties were experienced in obtaining sufficient data in respect of reinsurers (both offshore and on-shore). Since anecdotal evidence gathered from discussions with intermediaries and smaller players indicate that both the US players and reinsurers are almost certainly major players in the market, the sub-committee placed less emphasis on the quantitative results of the survey and more on the qualitative results.

Key findings and conclusions

The use and extent of credit risk transfers

7. Opacity is a real problem and it is very difficult to get information in a consistent manner. There is some evidence from market-wide surveys carried out from the banking sector that the global credit derivatives market is still growing at a brisk pace with insurers and reinsurers taking an increasing share. The latest BBA survey⁴ indicated that at the end of 2002 the global market amounted to almost \$2 trillion notional outstanding, and could reach near \$5 trillion by 2004. Further, the BBA survey noted the increased market share of insurers, particularly as sellers of credit protection. This would suggest that the insurance industry globally might be accepting around \$667 billion of credit derivatives. These numbers indicate that activity can be significant. However, they should be viewed with caution, as there are limitations. In particular the \$667 billion does not distinguish between buying and selling protection and so does not necessarily reflect the amount of credit risk transferred to insurers. It also includes structured products such as cash or synthetic CDOs in the definitions of credit derivatives.

8. It is very difficult to get definitive data as to how these global estimates of transaction volumes translate in terms of (re)insurers' own investment portfolios. Intensified exchange of views on a regular basis between banking and insurance supervisors might be helpful to map more precisely the exact importance of the (re)insurance sector in the credit risk transfer process. However, care needs to be taken when addressing the discrepancies between data from banking side and data from insurance side. This is in part due to the lack of standardised categories for both measurement and disclosure between insurers and bankers. However, as a guide, \$667 billion would represent less than 5% of the total assets of the insurance industry of 5 major economies. Consequently it appears that credit derivatives may be a relatively small proportion of insurers' investment activities, even though the industry is a significant player in the global market.

³ The countries participating in the survey were Australia, Canada, Denmark, France, Germany, Japan, Korea, Netherlands, Singapore, South Africa, Sweden, Switzerland and the UK.

⁴ British Bankers Association ("BBA") Credit Derivatives Report 2001/2002

9. Where the insurers are actively selling credit protection, often structured as insurance products or credit derivatives, these transactions are relatively easier to identify. What is more difficult to identify is that which arises from investment activities where the insurers are taking on credit risk in other forms (for example, structured bonds such as Collateralised Default Options "CDOs"). The sub-committee found little evidence of significant existing activity in credit derivatives⁵ carried on by the individual firms surveyed. Many firms surveyed indicated that credit derivatives might be an area they would consider in future. This interest appears to be fuelled by a desire to gain investment returns at a time of falling investment yields coupled with the desire to diversify portfolios where there are limited liquid bond markets.

10. A potential concentration issue was identified from the sub-committee's detailed investigations in that some very large notional amounts appear to have been taken by a collection of 15-20 specialist players. These include the (mainly US based) monoline financial guarantee insurers⁶ as well as, more generally, the most significant global reinsurers.

11. There was some evidence of credit risk transfers occurring within groups, particularly conglomerates, as a means of minimising regulatory capital. However, in general, regulatory arbitrage did not anymore appear to be the main driver for credit risk transfer activities.

12. Whichever mechanism is used to take on credit risk, this is an area where insurers could potentially experience large losses. Capital adequacy, supported by strong risk management systems, is therefore very important. In particular, there does appear to be a lack of transparency or clarity in some credit risk transfer products which could impact the level of understanding of credit risk being assumed and undue reliance may be placed on credit ratings. Many jurisdictions have traditionally limited the use of derivatives or structured bonds but there is evidence of some supervisors reviewing or relaxing these restrictions, and instead placing greater reliance on risk management systems and investment policies of insurers.

13. Under the current Basel rules for bank capital adequacy, and where jurisdictions restrict direct writing of credit derivatives by insurers, the credit transfer occurs through Special Purpose Vehicles (SPVs), which are used as "transformer" vehicles. The use of such vehicles for regulatory arbitrage reasons introduces a further potential layer of risks, particularly legal risks. There is a clear danger that losses could fall back to the original buyers of protection.

Issues for financial stability

14. Overall given the insufficient information in credit risk transfers to date there is not enough evidence to judge the impact on financial stability – whether adverse or beneficial. Credit risk transfers should potentially provide a stabilising mechanism if they enable risks to

⁵ However, the term 'credit derivatives' is not tightly defined in this context.

⁶ The data on US monolines was gained from external surveys rather than this IAIS survey as no direct US input was included in the "firm level" data survey.

be spread amongst a greater pool of players. However, this effect is likely to be limited in practice by the limited number of market participants who appear to be involved so far.

15. Regulatory arbitrage is a factor in some transactions, where insurers are actively selling credit protection, but does not appear to be the predominant driver as it used to be. Market participants believe that some insurers may not have priced the risks covered adequately. Conversely some banks and securities firms seeking to transfer risk may not adequately have appreciated that the protection bought may not perform as effectively as they had anticipated. Notwithstanding these differences in levels of understanding, the regulatory frameworks should ideally result in similar capital charges and risk management requirements for "like" risks. This is particularly relevant in the areas of financial guarantee insurance and mortgages where the current formal regulatory treatment often differs, for what are very similar risks.

16. Regulatory arbitrage is less of a driver where credit risk is transferred via the investment function as insurers seek increased yields and/or diversification of portfolios. However, the credit risk taken on, may often be direct from corporations, for example, through corporate bonds rather than via the banking system for example, through bank lending. The immediate effect on stability of the financial system may accordingly be less of an issue with this sort of transactions. However, the potential for broader stability issues due to corporate credit risks passing ultimately to retail investors, should be recognised.

Issues for risk management within insurance firms

17. Credit risk can potentially give rise to substantial losses and so firms engaging in such activities need to align internal capital requirements with the total level of risk they have accepted. This in turn needs to be supported by strong risk management systems. Credit risk does not in itself give rise to any new high level risk management issues, but is unusual in that it straddles both the investment and the underwriting activities of the insurer or indeed can extend to other parts of the group. This raises potentially difficult issues for detailed implementation of risk management systems within the firms, as these two activities often have different risk management approaches. New skills and techniques may be needed before firms participate in the credit risk transfer market. Control frameworks will need to be holistic, such that they are capable of crossing the traditional boundaries, and of operating at group-wide, as well as individual company level.

18. More specifically, the sub-committee looked at examples of minimum standards that might be suitable for development into an IAIS standard or guidance on credit risk management for insurance firms. These were examined under the following headings:

- **Risk assessment:** Does the firm understand the risk that it is accepting? For example, understanding who has the ultimate legal risk or basis risk where there is a complex chain of transactions or where the investment is via blind pools. Does the firm have staff of sufficient quality to make the risk assessments? Is there an over reliance on external credit rating agencies?
- **Risk measurement:** Does the firm have access to the expertise needed to measure the credit risk accepted? This will include taking into account possible correlations with other risks accepted by the organisation. For example, exposures to geographical or economic sectors and cross-linking between underwriting and investment risks.

- **Risk management:** Does the firm have an effective credit risk management program? This will include the setting of credit risk strategy and policies, developing management procedures to ensure that credit is only accepted in line with this strategy and having an appropriate system of measurement, monitoring and control underpinning the activities.
- **Risk control:** Does the firm have sufficient internal controls, operating limits and other practices to ensure that credit risk exposures are maintained within levels consistent with prudential standards and internal limits? For example, do the directors and senior management have sufficient information to evaluate the condition of credit portfolios? Is there a systematic credit review process to identify a reduction in credit quality at a sufficiently early stage to allow the management time to manage default risk?

Supervisory issues for regulators

19. Supervisory concerns relating to the increased use of credit risk transfer products are twofold. First, regarding the goals of supervision, there is a concern to ensure that regulatory standards do not encourage or facilitate regulatory arbitrage. Second, regarding the instruments of supervision, there is a need to ensure that supervisory staff have sufficient skills and tools to assess firms risk management systems and controls in this area.

20. Annex 4 of this report provides some simulations of different regulatory treatment between insurance firms and banks. These illustrate that it is not possible to make sweeping statements on the prudence of the different regimes. However, the measurement of assets and liabilities for insurance firms in a number of jurisdictions often constitutes the most significant portion of the built-in prudent rather than formulaic capital charges. Measurement is closely linked to accounting rules, which currently vary between countries and indeed firms. For this reason supervisory scrutiny of the underlying assets and liabilities is an important part of the insurance regulatory framework. The areas identified where the capital and solvency rules could possibly be brought together are financial guarantee insurance and mortgages.

21. There are two key areas which the sub-committee considered it worthwhile to draw to supervisors attention relating to credit risk:

- **Group transactions:** Does the firm have the requisite skills and knowledge to aggregate credit risk across the group? Are there any inter-group transactions engaged into which use regulatory arbitrage? There may be practical issues for group supervision, particularly where the group involves one or more reinsurers.
- **Focus on investment activities:** Given the opacity of some credit risk transfer products and of insurance reporting, supervisors may find it difficult to identify from mainstream regulatory reports, which firms have significant credit risk exposures through investment portfolios.

Next steps

22. The sub-committee identified a number of issues that could form the basis of further work in this area. Some of these issues are already being taken forward by other IAIS sub-committees. The *first* issue (complex products) is within the ambit of insurance supervision and this is in part why the sub-committee is in the process of updating the existing IAIS standards and guidance material for investments and derivatives to seek to improve

identification of risks and issues in this area. The *second* issue (reinsurance) is already identified as a priority for IAIS and this work is being taken forward through the reinsurance subcommittee (and the subcommittee on enhanced disclosure). The *final* issue (consolidated supervision) is a matter that is on the agenda of wider international groups such as the Joint Forum.

23. ***Identify and close gaps in regulation of complex products*** – Given the relative newness of many of the products being developed to transfer credit risk, there appears to be a significant gap where regulation has not kept pace. Some jurisdictions are unilaterally taking measures on this issue within national boundaries (at times drawing on existing IAIS standards and guidance material relating to derivatives and credit risk management).

24. ***Regulation of reinsurance*** – At the time of the survey there was no consistent international basis or standards for reinsurance supervision, indeed, many jurisdictions do not regulate reinsurance. This may have potential impacts and flow on effects for participants in credit risk transfer activities that involve reinsurance. Since the survey was completed the IAIS Principles Paper on reinsurance supervision was adopted at the October 2002 annual conference.

25. ***Consolidated supervision*** – Again, the extent to which there exists true consolidated supervision internationally diverges. Even where jurisdictions claim to undertake ‘group’ supervision, there may still be some gaps where unregulated activities are being undertaken within the wider corporate group. In these situations the potential scope for capital arbitrage could be particularly acute.

About this paper

26. The remainder of this paper is in two parts:

- Part 1 looks at the position of the credit risk transfer products in the market
- Part 2 examines the issues arising from credit risk transfer and raises questions to be considered.

Part 1: Explanation of the current position in the market

What is credit risk?

27. In this paper the term credit risk is used in a broad context. Credit risk is incurred whenever a firm is exposed to loss if another party fails to perform its financial obligations to the firm; it arises from both on and off balance sheet items. Unanticipated credit losses may arise both from circumstances that cause the default only of a particular counterparty (or group of related counterparties) and from underlying causes that have an impact upon the credit worthiness of all counterparties or all counterparties of a particular type, description or geographical location.

28. For contracts for traded financial instruments, such as the purchase and sale of securities or over the counter derivatives, risks may arise if the firm's counterparty does not honour its

side of the contract. This constitutes counterparty risk, which can be considered a subset of credit risk. Another risk is issuer risk, which could potentially result in a firm losing the full price of a market instrument since default by the issuer could result in the value of its bonds or stocks falling to nil.

Methods of credit risk transfer between banks and insurance companies

29. There are a number of ways in which credit risk can be transferred from banks to insurance companies. In practice, there are often different staff or control mechanisms in place between insurers’ underwriting activities and the investment activities. The sub-committee does not condone this segregation but in order to assist in the detailed survey process made an attempt to classify credit risk activities as ‘underwriting’ (where the resulting product is essentially an insurance product) or ‘investment’ activities. As illustrated in Table 1, there are many activities that straddle the boundaries, and these need to be recognised as part of a holistic approach to identifying and managing credit risk transfer activities.

Table 1: Classification of credit risk transfer methods

Underwriting	Overlap of underwriting and investment	Investment
Underwriting credit insurance policies Underwriting financial/bond/mortgage guarantees (or insurance) Reinsurance of any of the activities identified here	Acting as a counterparty in a credit derivatives transaction; this may include credit default swaps, total return swaps, credit-linked notes, credit-spread options, and credit exotics (e.g., binary and recovery rate deals), which may be derived from single and multiple underlying assets Provision of credit support (e.g., enhancement, loss protection, liquidity lines) to securitisations (cash and synthetic) Assumption of mortgage risks, including through the transfer of mortgages from a bank to a life insurer in the same group, or even through the direct writing of mortgages by a life insurer – there may be regulatory arbitrage incentives of this kind in financial conglomerates.	Purchasing securitisation issues of banks, either directly or through the use of Special Purpose Vehicles (this includes a range of asset backed securities which is a stepping stone to CDOs) As part of the normal investment strategy which will involve the assumption of credit risk arising from holdings in debt securities

30. Clearly there are some types of credit risk transfer products that cannot be easily classified as either underwriting or investment activities. The dividing lines between these categories is far from clear, particularly given that many of the activities are relatively new and in their early stages of development. Other factors that add to the difficulty in drawing distinct boundaries include:

- lack of transparency or clarity - for instance documentation is voluminous and complex and it is not always clear what the transaction is actually achieving;
- differences in tax, legal, regulatory and accounting treatments.

31. A lack of clarity may impact upon the level of understanding of the credit risk being assumed. As a consequence, undue reliance may be placed on ratings, especially on the investment side. Whilst ratings can be useful qualitative benchmarks, there is a moral hazard associated with reliance on them. Companies may not look through to the underlying credits in portfolio trades and this decreased level of scrutiny could result in correlations with existing business being overlooked. In addition, some concerns have been expressed about the speed to which ratings reflect credit deterioration, and in particular, the potential reluctance of ratings agencies to downgrade particular credits.

32. Clearly, the scope of credit risk transfer products is relatively wide. However, whilst most attention tends to be focused on credit derivatives and underwriting activities, there is evidence to suggest that investment activities are not only occurring, but have the potential to grow. Many insurers, particularly life insurers, are demanding these products as a means of diversifying their portfolios, enhancing yields and acquiring exposures to overcome limited liquid bond markets. Therefore, it is important not to ignore the wider spectrum of activities that banks and insurers are taking part in. Also, it is important to recognise that credit risk can appear on both sides of the balance sheet.

33. The insurer's risk management function needs to be able to identify and manage all these risks. Further the insurer needs to recognise that these risk can occur if the insurer is buying or selling credit risk or if the credit risk transfer is done to change the constituents of the tied or free assets.

Instruments and structures

34. Many products and instruments have been developed to accommodate the transfer of credit risk. While a number of 'methods' were highlighted above, these can be further dissected into various types of instruments. The Working Group on Credit Risk Transfer of the Committee on the Global Financial System (CGFS) has attempted to define many of these products.⁷ In order to ensure consistency and clarity and to avoid misunderstandings, those definitions should be referred to for the purpose of this paper. These are extracted at Annex 1 together with a description of credit derivatives.

35. As discussed below, some jurisdictions restrict the underwriting of credit derivatives by insurers. For example, in Canada, Japan and Bermuda, insurance companies are permitted to write credit derivatives as a free standing activity but in Europe insurance companies can only enter into credit derivatives as part of investment activities "connected to" insurance business. Accordingly, structures such as special purpose vehicles (SPVs) and transformer vehicles have been developed. These vehicles are essentially shell companies that accept credit risk in the form of derivatives and create an "insurable interest" so that this risk can then be laid off to an insurer by means of an insurance contract. The use of these vehicles however does not appear to be widespread – they mainly appear in the EU, US and Bermuda. Issues relating to

⁷ CGFS Publications No 20: "Credit risk Transfer", January 2003.

the use of these vehicles are set out in Annex 2. Also the IAIS issues paper on insurance securitisation⁸ deals at length with issues arising from the use of SPV's more generally.

36. Accounting also plays a significant part in how transactions are structured. For example, under US GAAP (FAS 133) there is a distinction drawn between whether the instruments are held as hedge or non-hedge transactions. Different accounting and by consequence regulatory treatment flows from this distinction.

37. Another example of accounting impacting on structure relates to the treatment of securitisation transactions. Although currently there are different accounting treatments, the International Accounting Standards Board (IASB) has recently stated that it intends to propose a new approach as part of its project to improve IAS 39 (financial instruments). Essentially, the proposed new requirements will not allow a 'sale treatment' to apply (i.e. where the amounts are removed from the balance sheet) when the 'seller' has a continuing involvement with the assets, as opposed to the treatment that would be applicable were the securitisation be treated as a 'clean break'. This approach is significantly different from that applied in some jurisdictions, for example US GAAP. This could not only cause accounting issues for existing transactions, but could also create issues for other structures that are similar to SPVs.

Attitudes and practices of insurance regulators

38. Many jurisdictions limit the direct use of credit risk transfers. In the EU for example, activities are not permitted as free standing trading activities. In addition, such use of derivatives in the EU is limited to efficient risk management or risk reduction purposes. Further, there are restrictions set out in asset admissibility rules when the derivatives relate to assets backing technical provisions.

39. However, the increasing interest in the use of credit risk transfer products has led many jurisdictions to review, and in some cases amend or introduce new rules in relation to the use of these products. There is some movement towards a relaxation of some of the more restrictive requirements on investment and underwriting activities, within certain boundaries, to allow greater flexibility for insurers. Some examples of these recent developments include:

- In Germany, the supervisor has engaged in negotiation with the industry to decide whether the transactions are eligible. A strict risk management approach is required, where, for example, insurers will be required to split contracts into their individual components and undertake an assessment of the risks; put in place internal guidelines; and provide information and report to the supervising Board. The negotiations have resulted in quotas for credit derivatives - asset-backed securities, including credit-linked notes, are capped at 7.5% of eligible assets and must be of at least investment grade. New guidelines were released April 2002. In addition, investment rules were revised in January 2002 which have lifted the quota system and require a higher standard of risk

⁸ IAIS Issues Paper on Insurance Securitisation - draft dated February 2003.

management practices, for instance investment strategy, which to a great extent have been modelled on IAIS Standards;

- In Australia, no legislative requirements exist which would limit credit transfer instruments as permitted insurance investments. However, if they were used in any extensive fashion, they would be subject to capital charges for significant investment risk. The appointed actuary of a life insurance company would be required to make specific allowance in reserving for credit risk accepted through these contracts. General insurers in Australia have some limited involvement in credit enhancement or risk transfer products. In the main these are non-innovative products such as trade credit facilities, surety bonds and performance bonds. To date there has been little investment in credit transfer instruments by insurers. If these instruments were to increase in popularity, APRA would examine the risk management expertise available within insurers and their ability to effectively manage these exposures.
- In Korea, their regulation on Supervision of Insurance Business prohibits insurers from a) transactions of some types of credit derivatives when it is considered as encumbering upon itself a surety and b) provision of credit support to securitisations when it is considered as encumbering upon itself a surety. Further, insurers are required to have good internal control and risk management systems before entering into the market. Further the regulator is proposing to write to insurers for details of risk strategy.
- In Singapore, guidelines on investments of insurance fund assets were revised in December 2001 and now permit insurers to take short positions on options, provide guidance on the use of credit derivatives (insurers should not take uncovered positions in derivatives, credit derivative contracts should be of investment grade or higher and the counterparty must have a financial strength rating of above C by Fitch or Moodys), and lift the prohibition on unlisted derivative contracts. In addition, these guidelines have increased the onus on the insurer to ensure its investment activities are carried out in an appropriate manner. There is a greater focus on risk management practices, including the requirement to have an investment strategy and an investment committee, and again these have been modelled on IAIS Standards

Regulatory treatment of credit risk in banks and insurance companies

40. A detailed analysis of the regulatory treatment for banks compared to insurance companies is contained in a recent Joint Forum Report on risk management and capital and it is not the purpose of this paper to repeat that work, only to draw upon its findings. The banking rules relating to credit risk in banks, based on the Basel Accord, give some numerical and subjective criteria for banking capital adequacy. In practice many credit derivatives fall into a bank's trading book. The capital charge for such transactions will depend much more closely on individual circumstances, the type of underlying assets, and whether the position is hedged; under certain circumstances the charge can be significantly lower than similar non-traded exposures in the banking book thus no further capital charge. The lack of risk sensitivity of the current Basel Accord has been a significant factor in prompting the current Review of the Accord.

41. There are no equivalent global standards for insurers, although key principles and subjective criteria are set out in the IAIS solvency principles paper.⁹ Most insurance regulators have some form of requirements that limit the type of assets (or quantity of assets) that an insurer can invest in.¹⁰ In the EU these are codified into Directives. In other jurisdictions, the rules will vary between countries. At present, the treatment of credit insurance implies greater prudence in relation to riskier exposures, and less prudence in relation to less risky exposures.

42. It is perhaps more interesting to compare the BIS2 proposals with the current insurance rules. Annex 4 shows a simple worked example to illustrate the way the present and future Accord respond to probability of defaults, as predicted by external ratings. An attempt has been made to compare this to the way EU insurance regulations would capture the requirements associated with a similarly rated exposure. The simulations in Annex 4 imply that the banking rules are harsher for all but extreme tail risk. However, the provisioning policies of insurance companies, which constitute the most significant portion of the built-in prudence, are linked closely to accounting rules that will vary between countries and indeed firms. For this reason, supervisory scrutiny of provisions tends to form a significant part of insurance regulatory activity.¹¹ Moreover, the solvency requirement itself - though a small proportion of the implied prudence - is based on a premiums basis - underpricing would therefore lead to a decrease in the requirement.

43. If an insurance company takes a credit exposure as an investment, the regulatory approach will be very different to the treatment of a similar underwritten credit exposure. In the EU, the regulatory treatment will depend on both the asset valuation and the admissibility limit. The asset side of insurance companies' balance sheet will only be subject to broad diversification tests. In essence, either an asset is *admissible*, and it fully counts towards the solvency requirement, or it is *inadmissible* - because of the nature of the asset, or because an 'admissibility limit' has been reached - and it will in effect be subject to a 100% capital charge. In contrast, where an insurance company underwrites a credit exposure, the regulatory requirements will be based on an assumption of prudent reserving against the potential liability and a solvency requirement.

44. The underwriting of credit insurance coupled with investments in the underlying assets could potentially lead to concentrations of exposures to the same counterparties or segments on both sides of the balance-sheet. There are at present few prescriptive regulatory requirements that would ensure that this risk is appropriately captured.

45. In Australia, where a risk-based capital regime applies to non-life insurers,¹² the treatment of credit derivatives is dependent both on the valuation of the asset (an 'asset equivalent value' is calculated for the derivative contract) and a prescribed capital factor (set

⁹ January 2002 – available at www.iaisweb.org.

¹⁰ IAIS, 'Outline issues paper on market risk in insurance', 26 June 2001, available at www.iaisweb.org.

¹¹ The importance of reserving is emphasised in the IAIS Principles on Capital Adequacy and Solvency, January 2002, available at www.iaisweb.org.

¹² As of 1 July 2002

by the regulator). The treatment is conceptually similar to that applied to the trading book of banks.

46. The asset equivalent value is prescribed by the Australian regulator as the sum of the current marked-to-market exposure of the derivative (where positive) and a potential exposure add-on. The potential exposure add-on is determined by multiplying the notional principal amount of the derivative contract (regardless of whether the contract has a zero, positive or negative mark-to-market value) by a credit conversion factor specified by the regulator according to the nature and residual maturity of the instrument (credit derivative contracts generally attract a factor of 10-15%). The asset equivalent value of each derivative must then be multiplied by a capital factor applicable to a debt obligation of the counterparty to the derivative contract to determine the capital charge.

47. It is recognised that this method of measuring the risk of derivative positions is simple and may not always reflect the underlying risk to which the insurer is exposed. However, given the limited usage of derivatives within the Australian general insurance industry, the regulator is of the view that the simple method will be adequate for the vast majority of Australian insurers.

Estimated size of transfers relative to firms and markets

48. A number of surveys have been carried out recently attempting to get a feel for the overall size of the global market in this area. An extensive review of published surveys can be found in a recent discussion paper, issued by the UK regulator, on cross sector risk transfers¹³. The common themes emerging from these surveys are that data can be collected on credit derivatives and CDOs but it is much more difficult to obtain data on other products such as credit insurance where much of this business is genuine trade credit insurance. Further, it is difficult to truly assess the size of the market due to the difficulty in collating the data, which currently is categorised differently between insurers, banks and other financial institutions, and differs between countries too. This problem in the opacity of the data, infers the need for better accounting, disclosure and classification of instruments. Some of these issues may be addressed over time by the IASB's international accounting project and IAIS 'enhanced disclosure' initiatives, and are not the subject of this paper. Some suggestions on how supervisors might internally classify various instruments will be included in the IAIS revised guidance material on investment risk management.

Credit derivatives and CDO volumes

49. Surveys on the volumes of credit derivatives suggest that the global credit derivatives market is still growing; the various estimates are fairly consistent and suggest that notional amounts exceeded \$1trillion in 2001. Recent estimates published by the BBA¹⁴ suggest that the notional outstanding on credit derivatives transactions have increased significantly (to

¹³ Discussion Paper 11, 'Cross sector risk transfers', FSA, May 2002

¹⁴ BBA survey 2001-2002, 'Credit Derivatives Survey'

almost \$2 trillion in 2002) and could reach near \$5 trillion by 2004. In parallel with the growth of credit derivatives, CDOs have become a significant asset class for investors. Though not 'credit derivatives' per se, many participants refer to CDOs in the same breath and these activities are often viewed as close substitutes. For example, the BBA survey includes structured products such as cash or synthetic CDOs in the definitions of credit derivatives.

Market participants

50. Of particular interest in the BBA surveys is the increased market share of insurers particularly as sellers of credit protection. In their 2001-2002 survey, the BBA split the market share of insurers to identify the contribution of monolines/ reinsurers. The split confirms the IAIS' investment sub-committee's anecdotal survey findings that monolines and reinsurers are the major insurance players in these markets (21% market share compared to 33% for the insurance industry overall). This would suggest that the insurance industry globally is accepting \$667bn of credit derivatives. These numbers indicate that activity can be significant. The BBA estimates that insurers will overtake banks as the main sellers of protection in these markets by 2004.

Product trends

51. The BBA 1999/2000 survey reported that market practitioners felt that with the increasing sophistication of the market, product lines were becoming increasingly blurred and it was difficult to distinguish between the individual product categories. The use of portfolio products and synthetic CDOs, in particular, has steadily grown over recent years. The BBA 2001/2002 survey reported that insurance companies are expected to overtake banks for market share in the global credit derivatives market by 2004. Further, standard credit default products (single-name credit default swaps) still make up the largest product category (45%).

Conclusion

52. It is very difficult to get definitive data as to the level of credit risk transfers in terms of (re)insurers' own investment portfolios. Intensified exchange of views on a regular basis between banking and insurance supervisors would probably be helpful to map more precisely the exact importance of the (re)insurance sector in the credit risk transfer process. However, care needs to be taken when addressing the discrepancies between data from banking side and data from insurance side. This is in part due to the lack of standardised categories for both measurement and disclosure by insurers. However, as a guide, \$667bn would represent less than 5% of the total assets of the insurers of 5 major economies. Consequently it appears that credit derivatives may be a relatively small proportion of insurers activities, even though the industry is a significant player in the global market.

IAIS survey results

53. The IAIS undertook a survey of member jurisdictions aimed at collecting both quantitative and qualitative data in relation to credit risk transfer activities. The survey was predominantly targeted at insurance companies, however where the supervisor is integrated, it was required to provide responses in relation to the involvement of banks as well.

54. Unfortunately, the US survey results were provided too late to be included in the paper. However, preliminary review of the US results indicates no inconsistencies with the conclusions of the paper. The IAIS experienced difficulties in obtaining data in respect reinsurers (both offshore and on shore). Since anecdotal evidence gathered from discussions with intermediaries and smaller players indicate that both the US players and reinsurers are almost certainly major players in the market, the sub-committee placed less emphasis on the quantitative results of the survey and more on the qualitative results.

Scope

55. The IAIS approached the issue by asking companies to provide details as to what credit transfer activities they were involved in, and in what capacity, together with what was their strategy (including reluctance to enter) and methodology for this area. Also, the Sub-committee asked firms to provide details on the level of magnitude of the credit transfer products they had entered into, together with the level of notional risk they had attributed to these products. In addition, the Sub-committee tried to gain data on who was responsible within companies for making and managing these decisions. Further, companies were asked to provide an indication of what plans they had to significantly increase activity in this area in the future.

56. 13 jurisdictions participated in the survey covering Europe, Africa, Canada and Asia¹⁵. A total of 35 insurance firms (including reinsurers) were surveyed and these tended to constitute the largest firms (by premium income) in their respective jurisdictions. Other institutions surveyed included banks (8), ratings agencies (2), consulting firms (2) and investment banks (2).

Quantitative results

57. A summary of the quantitative results (for insurance firms only) is set out in the 'pie charts' below. It should also be highlighted that these results are indicative only. Some firms surveyed indicated their involvement in particular instruments but did not provide definitive data.

58. As can be seen, there appears to be some significant activity in credit derivatives in Asia, however there is little evidence of significant existing activity in credit derivatives elsewhere. There did seem to be though, an increasing trend in credit risk transfer activities for investment purposes, primarily driven by a desire to gain higher investment yields and reduce risk concentrations. In addition, a lot of activity in the area also seems to be due to a willingness of insurers to invest in the junior tranches of SPVs.

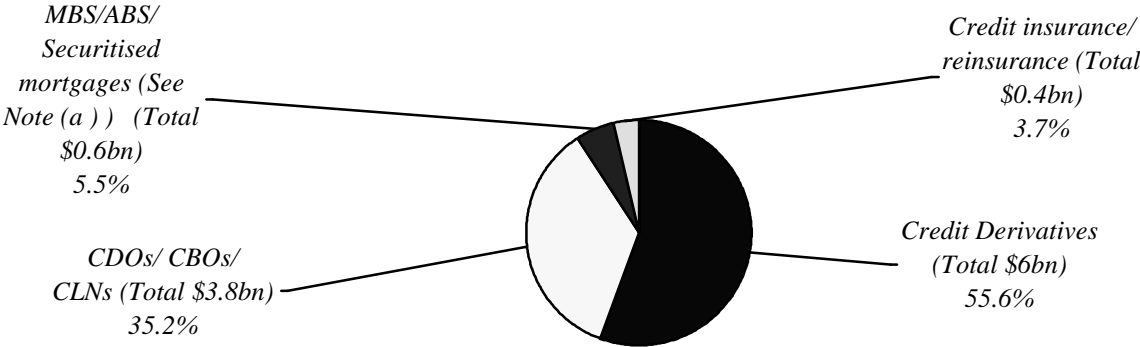
¹⁵ Countries participating were: Australia, Canada, Denmark, France, Germany, Japan, Korea, Netherlands, Singapore, South Africa, Sweden, Switzerland and UK.

59. The latter indicate that there is scope for future growth of credit risk transfer activities, particularly as banks for instance seek to take a lesser role as holders of credit risk and insurance firms seek greater yields and need a greater variety of instruments to hedge their own credit and market risks. In addition, the reduction of risk weighting for insurers in Basel II will make them more attractive to banks as counterparties.

Summary of quantitative results based on the respondents to the IAIS survey

60. There were a total of 35 insurance firms surveyed (located in Europe, Africa, Canada and Asia). There were no respondents to the survey from the US players and offshore sites. The survey respondents had a total of \$10.8bn invested in these products.

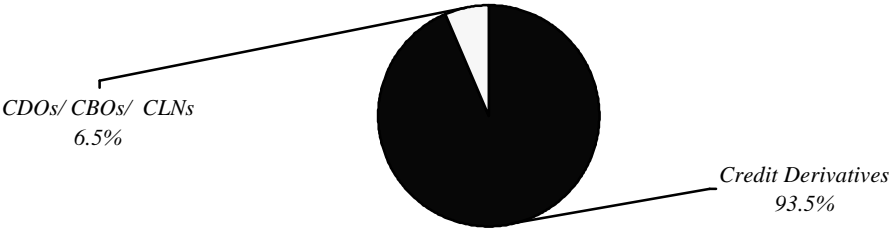
Summary of all responses



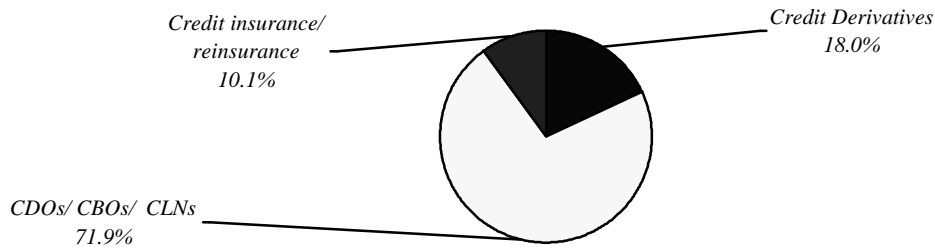
Note (a): these types of instruments were not specifically part of the survey however some firms did provide this data. Accordingly, this data is not necessarily reflective of the size of the market for these products. Further, recent changes in Germany have enabled the German regulator to start gaining some data from primary insurers.

61. This can be broken down geographically as follows:

Asia (6 insurance firms)

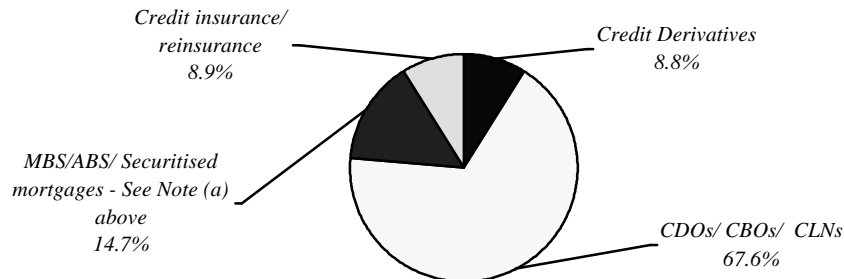


Canada (5 insurance firms)



and

Europe and Africa (24 insurance firms)



Qualitative results

62. The survey identified a number of common themes, over and above the technical provisions occurring across responding jurisdictions. These were: -

- Very few companies claim to be investing in credit derivatives. However, this could in part be due to terminology differences. There appears to be more activity via synthetic CDOs that have similar risk characteristics to credit derivatives.
- There appear to be few (and sophisticated) players, who undertake few transactions but large in size. Further for credit derivatives, these tend to be predominantly life insurers. However, in part this seems to be due to difficulties in identifying such transactions. There appears to be more activity by smaller life funds in CDOs.
- It would appear that life insurers themselves seem to be driving demand, as they are looking for higher returns, greater exposures and diversification.
- Investment departments tend to be managing and driving the transfer business, – again for higher returns and because there is a lack of alternative investment instruments in traditional bond market combined with interest rates.

- Another driver for such products is the lack of liquidity available in the market for name specific exposures – credit derivatives are used to move exposures more quickly.
- There is some demand from smaller companies for ‘packaged’ products – again primarily to diversify.
- There was some limited evidence of arbitrage between insurance and banking regimes, particularly in the banking sector where it is possible to get some relief from the banking capital requirements. The arbitrage appeared to be in markets where conglomerates were more common.

63. Where respondents advised that they had no involvement in credit transfer the main reason cited was because they did not have the infrastructure yet. Other reasons cited included the respondent having conservative investment strategies and was waiting for products to become more developed/standardised/transparent, together with many jurisdictions having (or had) restrictions on investment rules that limited the scope for insurers to pursue these types of instruments.

64. The responses inferred the potential for growth more on the "underwriting" side of the credit transfer market. However this is still limited to larger players who are able to "package assets".

65. A number of areas were identified as potentially posing a risk to participants in credit risk transfer activities. These include:

- Contagion – the risk that participation in credit risk transfer activities may, possibly through a lack of understanding of the impacts of activities, could affect other areas of a firm’s business activities;
- Information asymmetries – where the two parties to a transaction have a different level of knowledge about the transaction - most commonly, the seller has more information than the buyer;
- Documentation issues – the risk that errors in documentation may result in a different legal effect of the transaction than participants actually understand it to be;
- Regulatory arbitrage – where credit risk transfer activities are used as a means of avoiding requirements or taking advantage of differences in regulatory regimes between say banking and insurance;
- Legal risks – essentially an extension of documentation risks, where there is potential for the legal effect of a transaction to be different to what the participants understand it to be;
- Timing/liquidity risks – where some event takes place that results in a participant having insufficient liquidity to meet their obligations.
- Basis risk - where the risk that the yields on instruments of varying credit quality, liquidity, and maturity do not move together, thus exposing the insurer to market value variation that is independent of liability values. Further the impact of an interest rate move may have a different impact upon the asset and liability side of the balance sheet.
- Currency Risk- where the risk that relative changes in currency values decrease values of foreign assets or increase the value of obligations denominated in foreign currencies.

66. In addition, a number of potential group-wide issues were identified:

- Intra-group transactions – where transactions are not at arms-length, a number of issues could arise. For instance, subsidiary firms may not undertake an adequate assessment of risks being taken on which could jeopardise their own risk profile and financial position;
- Aggregation of risks rarely occurs – while individual firms within groups can identify the risk to which they are exposed, there appears to be little aggregation of group-wide risks (since group's may not be sufficiently integrated) to allow group's to identify opportunities for credit risk transfer activity, or even threats to their own financial position;
- Adequate knowledge and skills - where firms are lacking this, they could potentially expose themselves to a range of risks; and
- Risk management – processes and controls to address risk management throughout the group would assist in identifying, managing and monitoring risks that could affect the financial soundness of the group.

67. The Reinsurers that responded to the survey inferred that they were not very active in the credit transfer market. Some cited reluctance to actively participate in the market was due to the current downturn in the major economies. Further, one major reinsurer reported that its investment management arm was principally active as an investor in the CDO market. Several Reinsurers commented on the development of the credit risk market, and emphasised the need for the (re)insurer to follow good risk management standards. Some of the Reinsurers commented that credit transfer instruments facilitate a highly diversified portfolio, and that this in turn improves the risk structure of the business.

68. A potential conflict of interest issue was identified where an insurer can act as both an issuer of CDOs and as an investor of CDOs. For example, if an insurer acts as an issuer of CDOs, tranches of which are bought by one of the life funds. It is theoretically possible for the group to lean on the fund to make an investment, which may not be optimal for policyholders.

69. Analysis of these results led to an identification of a number of supervisory tools that are either being used or could be used to address risks involved in credit risk transfers. These are discussed in more detail in Part 2.

Part 2: Identification of the issues and questions to be considered

Opportunities and threats to financial stability

70. Credit risk transfers provide those warehousing credit risks with an opportunity to reduce risk concentrations and pass on unwanted risks. In this sense, they provide a similar stabilising mechanism as reinsurance for the insurance sector. As noted above, the potential to increasingly shift credit risk between different sectors of the financial system (for instance, from banks to insurers), can contribute to a more stable financial system as a whole. Credit risk transfers also create a secondary market for credit and this could contribute to greater transparency of the price of credit, as well as greater liquidity.

71. It is important to be able to determine who are the ultimate risk bearers in order to estimate the impact on financial stability. There needs to be enough risk bearers to ensure diversification benefits are realised, otherwise a concentration issue could easily result. Even though the credit risk transfer market is still developing, our survey results suggest that participants are restricted to a few large and sophisticated players, however there is growing demand by smaller life insurers for investment-type products. Despite this apparent concentration, there is insufficient evidence to suggest any substantial implications for financial stability - there seem to be more issues for supervisors (see below).

72. Another challenge for participants, and prospective participants, in the credit risk transfer market, is the need to ensure that staff have adequate skills and have the appropriate techniques available to assess the risk involved. In this context a parallel can be drawn with reinsurance – that is, different skills and techniques are needed to underwrite reinsurance than are needed to underwrite direct insurance. To support this, there also needs to be a sound risk management framework for staff to work within. This is further explored below.

73. An increase in credit risk in insurance companies, may also alter the balance of risks within the industry - for example, by making the industry more sensitive to economic downturns. This would not only increase the need for credit risk management policies - including for sheer monitoring purposes - both as a corporate governance and regulatory tool, but highlights the need to ensure these risks are appropriately accounted for in a capital adequacy or solvency regime. In addressing the latter, it would seem sensible to review the insurance and banking regimes with a view to ensuring there is consistency between the treatment of not only credit risk but all risks – particularly given that some products, such as financial guarantee insurance and mortgage transactions, straddle credit, market and other risks.

74. A number of respondents to our survey believe the main benefit of credit risk transfer products is better diversification of portfolios. For example, improved diversification of risks within the portfolio while still expecting the same return, and appropriate diversification of the portfolio may also help to improve the financial stability of a firm, which has both a banking and insurance arm, since the portfolio may be adjusted more accurately to risk elements chosen (i.e. selling concentrated risks and buying diversified risks). An important prerequisite of this portfolio management, especially for financial conglomerates, is that individual risks are combined within groups so that any concentration of risks may be noticed.

Risk management issues for firms

75. Credit risk can potentially give rise to substantial losses and so firms engaging in such activities need to align internal capital requirements with the total level of risk they have accepted. This in turn needs to be supported by strong risk management systems. Credit risk does not in itself give rise to any new high level risk management issues, but is unusual in that it straddles both the investment and the underwriting activities of the insurer or indeed can extend to other parts of the group. This raises potentially difficult issues for detailed implementation of risk management systems within the firms, as these two activities often have different risk management approaches. New skills and techniques may be needed before firms participate in the credit risk transfer market. Control frameworks will need to be

holistic, such that they are capable of crossing the traditional boundaries, and of operating at group-wide, as well as individual company level.

76. More specifically, the IAIS looked at examples of good practice that might be suitable for development into an IAIS standard or guidance on credit risk management for insurance firms. These were examined under the following headings:

- **Risk assessment:** Does the firm understand the risk that it is accepting? For example, understanding who has the ultimate legal risk or basis risk where there is a complex chain of transactions or where the investment is via blind pools. Does the firm have staff of sufficient quality to make the risk assessments? Is there an over reliance on external credit rating agencies?
- **Risk measurement:** Does the firm have access to the expertise needed to measure the credit risk accepted? This will include taking into account possible correlations with other risks accepted by the organisation. For example, exposures to geographical or economic sectors and cross linking between underwriting and investment risks.
- **Risk management:** Does the firm have an effective credit risk management program? This will include the setting of credit risk strategy and policies, developing management procedures to ensure that credit is only accepted in line with this strategy and having an appropriate system of measurement, monitoring and control underpinning the activities. Further, controls should be commensurate with the nature and complexity of the risks.
- **Risk control:** Does the firm have sufficient internal controls, operating limits and other practices to ensure that credit risk exposures are maintained within levels consistent with prudential standards and internal limits? For example, do the directors and senior management have sufficient information to evaluate the condition of credit portfolios? Is there a systematic credit review process to identify a reduction in credit quality at a sufficiently early stage to allow the management time to manage default risk?

77. In particular, for insurance firms involved in credit risk transfer products, they will be exposed to a number of potential risks (of which credit and market risks are key investment risks), particularly when unfamiliar territory is being explored. While the nature and degree of these risks will depend on what activities are pursued (for instance underwriting, investment or a mix of both), firms will need to ensure these are managed properly. Further, there can be cases when insurance companies, without being aware, become exposed to market risk when undertaking insurance risk or credit risk. However, this paper is looking specifically at credit risk.

78. In addition to those risks identified as part of the survey, there are a range of potential risks to which firms may be exposed which include:

- *Aggregation of credit risk:* The insurer should have in place procedures to aggregate and assess the appropriateness of the credit exposure on both sides of its balance sheet.
- *Categorisation risk:* Credit transfer instruments categorised into categories typically used can detract from properly understanding the risk. Hence there is the need to focus on credit risk categories such as surety business, credit and bonding, credit enhancement and investment credit risk.
- *Mispricing risk:* The risk that products are not priced to appropriately reflect the degree of associated risk;
- *Reserving risk:* The risk that liabilities are not adequately estimated;

- *Legal risk* (in particular if there are disputes over the terms and any knock-on effects on the reinsurance market): The risk that the legal interpretation of a transaction is not the same as the parties anticipated. This could particularly arise where the economic view of products is the same, but the legal treatment is not – for example, credit derivatives and credit insurance are substantially the same from an economic perspective, although legal interpretations ensure they are distinct;
- *Counterparty risk* (the counterparty to the trade, not the underlying): The risk that the counterparty could default which may have the effect of the obligation falling to the other party where this was not anticipated or accounted for;
- *Concentration risk*: This risk arises because the insurance company's credit exposures (whether acquired via its underwriting or investment activities) are heavily concentrated among specific debtors or industry sectors. Embedded options, such as undrawn credit lines, may increase this risk.; and
- *Understanding risk*: The risk that transactions being entered are not properly understood by the parties and so additional risks may be taken on that are not anticipated.

79. To manage risks, firms should have in place sound risk management systems. IAIS Supervisory Standard on Derivatives (October 1998) sets out standards and guidance for risk management systems for derivatives that are equally applicable to credit risk transfer products.

80. Effectively, the Board of Directors should set the insurer's overall risk management strategy, approve policies and procedures in relation to the use of credit risk transfer products and ensure these policies and procedures are put in place and are supported by adequate information systems, reporting, monitoring and controls. Senior management should establish operational policies and procedures for implementing the strategy set by the Board and ensure that these are implemented throughout the firm.

81. A key driver of the investment strategy adopted by an insurer should be its liabilities profile, and the need to ensure that it holds sufficient assets of appropriate nature, term and liquidity to enable it to meet those liabilities as they become due. Further, the strategy should cover both the asset and liability sides of the balance sheet.

82. Detailed analysis and management of this asset/liability relationship will therefore be a pre-requisite to the development and review of investment policies and procedures, which seek to ensure that the insurer adequately manages the investment-related risks to its solvency. The analysis should involve, inter alia, the testing of the resilience of the investment portfolio to a range of market scenarios and investment conditions, and the impact on the insurer's solvency position. For example the investment strategy should assess the suitability and spread of assets covering insurance liabilities, the need of appropriate diversification of assets and the need for close matching of linked assets and liabilities.

83. The insurer should have policies on credit, treasury, large exposures, outsourcing, liquidity, and use of derivative contracts and valuation methodologies. The insurer should have procedures in place for the formulation of these policies together with their approval process. These should cover all risks, activities, markets and products of the insurer. These should be reviewed regularly and kept up-to-date.

84. Insurers should have a system by which they can control the risks that are associated with their business, and are appropriate to their risk appetite, and are within levels consistent with prudential standards and internal limits. Chapter 4 of the IAIS Supervisory Standard on Asset Management by Insurance Companies provides details on the risk management function, internal controls and audit. This process should be performed by a risk management function, resourced with suitably qualified staff.

85. Good risk management is required, irrespective of whether the insurer is buying or selling credit risk or if the credit risk transfer is done to change the constituents of the tied or free assets. Further it should be noted that many jurisdictions' legal and accounting regulations often make these distinctions.

86. The risk management function should also assess the appropriateness of the asset allocation limits. To do this, regular resilience testing should be undertaken for a wide range of market scenarios and changing investment and operating conditions. Once an insurer has identified those situations to which it is most at risk, it should ensure that it feeds back appropriate amendments to the policies and procedures defined in its investment mandate in order to manage those risk situations effectively.

87. The risk management function should regularly report to appropriate levels of senior management and, as appropriate, to the Board of Directors. The reports should provide aggregate information as well as sufficient detail to enable management to assess the sensitivity of the insurer to changes in market conditions and other risk factors. The frequency of reporting should provide these individuals with adequate information to judge the changing nature of the insurer's asset profile, the risks that stem from it and the consequences for the insurer's solvency.

88. The responsibility of risk monitoring and control of risk should be clearly assigned to an independent function. As mentioned earlier the insurer should organise itself so that it adheres to best practice in relation to Internal Controls, as set out in Principle 5: Internal Controls, contained within the IAIS Insurance Core Principles and Chapter 4 of the IAIS Supervisory Standard on Asset Management by Insurance Companies. This process should include:

- a methodology to ensure all identified risks are monitored
- consideration and review of the frequency, timeliness, accuracy, and clarity of monitoring reports
- consideration and review of the report distribution to management and staff
- Output comparing actual limits against predetermined limits.

89. When using derivatives, insurers should also take into consideration that counterparty exposures would change depending on the mark-to-market value of the underlying financial instrument. Effective measures of potential future exposure are essential for the establishment of meaningful limits, placing an upper bound on the overall scale of activity with, and exposure to, a given counterparty, based on a comparable measure of exposure across a company's activities (both on and off-balance-sheet).

90. Adequate systems of internal control must be present to ensure that business activities are properly supervised and that transactions have been entered into only in accordance with the insurer's approved policies and procedures. Internal control procedures should be

documented. The extent and nature of internal controls adopted by each insurer will be different, but procedures to be considered should include an assessment of:

- the independence of the risk control process;
- the experience, qualification and skills of the personnel within the risk control function;
- the reporting lines from the risk control function to senior management
- the actions taken to ensure that risks are maintained within pre-established limits; and where exception occur, these are reported and followed up.

91. The controls should be adequate for the nature and scale of the business. Further detail is contained within Section 4.2 of the IAIS Standard on Asset Management for Insurance Companies.

92. Preferably, systems should be in place to allow the insurer to monitor its aggregate exposure to different categories of assets (paying particular attention to the different kinds of instruments under which the exposure can arise).

93. Preferably, insurers should ensure that controls over derivatives and other complex investment instruments have been developed and are adequate to ensure that risks are properly assessed, regularly reviewed in the light of changing market conditions and experience, and consistent with the overall investment strategy. Further the risk management policy should clearly distinguish between asset/liability management and the specific credit risk management.

94. Preferably, insurers should have clearly defined and appropriate levels of approval authorities. This will help ensure that credit decisions are prudent, that the integrity and credibility of the credit process is maintained, and that the risk is acceptable given the expected return. Authorities should be reviewed and approved by an individual(s) whom are independent of the investment decision maker(s). This independent review function should have the requisite skills to independently evaluate credit risk. Approval limits should relate to some combination of type of credit activity; credit (risk) rating; size; credit concentration; type of collateral security; and liquidity of issue or obligor.

95. Preferably, an insurer should organise itself such that its Internal Audit function has a charter and terms of reference, independent reporting lines and risk-based methodology. Further detail is contained within Section 4.3 of the IAIS Standard on Asset Management for Insurance Companies. Further Internal Audits should identify any weakness or deficiencies in the risk management system.

96. To adhere to good corporate governance practice, the insurer should have an Audit function, which should approve the audit programme. All audit reports should have recommendations (i.e. prioritised, agreed with the business, responsibility for action, time scales). Further, all recommendation should be followed up.

97. The insurer's management information should have the ability to identify and report key indicators, performance measures and trends relating to risk management. Assessment should be made of the appropriateness of the frequency and distribution of reports, the layout of the management information, such as the commentaries on variances.

98. Senior management should be aware and understand the key IT issues for the investment risk strategy, such as the procedures for developing, testing and implement new risk controls. Senior management should monitor key IT performance indicators, disaster recovery procedures and business continuity.

99. The insurer should have a remuneration policy (including bonuses), which does not encourage excessive risk taking. Further it should have procedures to monitor and control the risks rewarded by the bonus scheme.

100. Senior management should ensure that a named individual is responsible for all compliance matters. The insurer should have a process for dissemination of compliance information, ensuring that it has up-to-date staff training, and that regular compliance reports are produced. Further it should ensure that there is a procedure to ensure the monitoring of compliance with policies, the notification of compliance breaches and senior management response/follow up of such breaches.

101. Anecdotal evidence suggests that there may be practical issues for insurers not having sufficient data, systems or expertise to deal with credit risk transfer business given its relative newness. While robust risk management systems may alleviate potential problems to some extent, there may still be a number of impacts on firms and issues firms will need to address. For instance, firms will need to ensure that:

- staff have adequate skills and have the appropriate techniques available to assess the risk involved;
- pricing is sufficient;
- diversification opportunities do not result in large concentrations in a particular sector or geographic area (leveraged instruments, credit derivatives can speed up this process);
- correlations between different business lines or different sides of the balance-sheet are not overlooked (for example, where correlated credit exposures are acquired through investment in an underlying debt and through the insurance of similar credit losses) and that accumulations of risk are identified; and
- where there are ‘blind pools’ (i.e. restricted exchange of confidential information on underlying credits) that caution is exercised.

102. Again, it is important to highlight that the risk management systems and controls need to be holistic, that is, capable of crossing the boundaries of “underwriting” and “investment” risks. While traditional risk management systems and controls are likely to be compartmentalised to address each category of risk, credit risk transfers can not necessarily be put into these neat boxes.

Supervisory issues for insurance regulators

103. A significant increase in credit risk transfers can give rise to supervisory concerns, such as the potential for regulatory arbitrage and whether regulatory tools are appropriate to monitor and assess the risks being taken on by firms. These concerns are heightened by the structure of the insurer group and the attendant need for group risk management.

Regulatory arbitrage

104. The possible exploitation of regulatory arbitrage is at the heart of concerns over credit risk transfers. When firms identify and take advantage of gaps in regulation between the insurance and banking sectors, they may derive what appear to be benefits, for example the most common form of regulatory arbitrage is capital arbitrage where regulatory capital requirements can be reduced as a result of credit risk transfers. Yet for supervisors there are concerns over potential competitive distortions that may have negative consequences such as a misallocation of capital and inappropriate risk-taking.

105. However, arbitrage opportunities need not be a bad thing, indeed there may be valid reasons for one industry to have a pricing advantage, especially if credit transactions provide insurance companies with diversification opportunities while reducing concentrations to the risk originators - or allowing them to manage a lending relationship without exceeding self-imposed risk limits. In addition, it is highly unlikely that well-managed firms will engage in transactions that are not economically viable (based on their own assessment at that time).

106. Despite growing concerns, the survey results suggest that regulatory arbitrage is not as prevalent as initially thought. While some cases were identified, these were limited to mortgage transactions between group companies and financial guarantees. These types of transactions did result in reduced capital requirements for banks and also involved some accounting and legal arbitrage. In addition, some market participants also suggest that regulatory arbitrage as a driver for credit risk transfer is declining in importance, with the main drivers now appearing to be:

- an appetite for new risk areas for insurers, i.e. diversification as a strategy;
- balance sheet management with economic capital driven deals;
- diversification of funding - there is more wholesale funding available now than there was 10 years ago and prudent banks are keen to look at other investor bases.

107. Given these results, regulatory arbitrage does not appear to be the main issue for supervisors when considering credit risk transfers. However, there are measures that can be taken to reduce potential distortion effects. The obvious response is to try and understand the differences between the regimes and, where appropriate, align the regimes more closely together to reduce the negative effects of such arbitrage and increase transparency with regard to the differences. Attempts at trying to understand the differences between the banking and insurance regulatory regimes have been made, particularly by the work of the Joint Forum Working Group on Risk Management and Capital. However, that work guarded against making simplistic comparisons of the regimes and noted that each supervisory regime should be taken as a whole rather than as the component parts. Despite this, cross-sector risk transfers were still felt to be an area to watch as an increase in convergence between the sectors may undermine the adequacy of sectoral regimes to new risks.

108. The other main concern for supervisors is whether they have appropriate supervisory tools to ensure that the risks inherent in credit risk transfers are adequately managed. The Supervisor needs to assess the firm's overall risk management policy, whether it is appropriate for the firm's risk appetite and how it organises risk management. The Supervisor needs to assess that all staff involved with credit risk issues, whether they be at Board level, trading, risk monitoring etc, understand the risks involved, that they confirm within the appropriate level for the firm and that they are adequately and appropriately managed.

109. An effective credit risk management program involves sound practices, as outlined in the previous section of this main paper. Credit risk management standards should be maintained notwithstanding pressure for increased profitability, marketing considerations and a vastly more complex financial environment. Although specific credit risk management practices may differ among institutions depending upon the nature and complexity of their credit activities, a comprehensive credit risk management program should address these four areas.

110. Supervisors should expect that a firm has a policy and procedures relating to its credit risk management. These should address:

- Credit Risk Philosophy- a firm's statement of principles and objectives that outlines the company's tolerance for credit risks and other risks to which the firm is exposed, including its risk/return philosophy
- Credit Risk Management policy, which would address credit risk measurement, general areas of credit, approval authorities and portfolio concentration limits
- Credit approval, documentation and collection process, which would address evaluating credit proposals, credit documentation, legal documentation, credit collection process and arrears management
- Credit portfolio monitoring and control, which would address portfolio characteristics, credit rating systems, credit review and reclassification and credit audits

111. Supervisors should expect that a firm has a policy and procedures relating to its group credit risk management. These should address:

- Existence of areas of the group that fall outside Group Risk's remit
- The extent of standardisation of policies & procedures group-wide
- Whether the insurer has the requisite skills and knowledge to aggregate credit risk across the group
- The extent and impact of intra regulatory arbitrages relative to inter-group transaction. (Although there may be practical issues for group supervision, particularly, where the group involves one or more (re) insurer(s).)

112. Supervisors should also seek to ensure that, where insurers are part of a financial group, that there are procedures in place to ensure that risk is managed in an appropriate and integrated manner across the group. In performing this assessment, co-operation and exchange of information with other supervisors, in accordance with established procedures, may be necessary. Some supervisors may choose to use external auditors in these assessment processes.

113. Quantitative tools that could be used by Supervisors are:-

- asset admissibility limits and/or reserving requirements - These should take account of synthetic as well as actual exposures
- impose risk based capital measures in the broader sense, i.e. whether this is part of asset admissibility rules, capital charges or liability valuation for instance
- use of firm internal models and stress testing.

114. The means for supervisors to assess the above are:

- external validation and/or use of experts (such as auditors, actuaries, risk managers);
- systems and controls requirements;
- on-site inspections;
- off-site surveys and surveillance;
- product control;
- access to information;
- increased regulatory reporting to capture more relevant data – for example, a greater dissection of assets (could be standardised to enable greater market comparisons), and detail in relation to embedded options (at realistic values);
- improve publicly disclosed reporting
- require more robust risk management frameworks and investment committees.

115. Information should be timely and comprehensive (i.e. it should include all assets held and cover the entire reporting entity). Specifically, supervisors may wish to seek from insurers, details relating to credit risk such as:

- Credit exposures, including aggregations of credit exposures, as appropriate, by:
 - groups of connected counterparties
 - types of counterparty as defined, for example, by the nature or geographical location of the counterparty
- Credit decisions, including details of the decision and the facts or circumstances upon which it was made
- Information relevant to assessing current credit quality.

116. Clearly, there is a growing need for firms to have in place sound risk management systems and controls and for the supervisor to place some degree of reliance on these systems and controls. However, these systems should not be restricted to addressing credit risk by any means. As discussed at the outset, many products straddle both underwriting and investment activities, and as such a firm can face a broad spectrum of potential risks.

117. Indeed, the Office of the Superintendent of Financial Institutions (OSFI - the Canadian integrated regulator) found in a recent survey¹⁶ of banking practices that effective credit derivatives risk management straddles conventional credit risk and market risk management. The survey found that analytic and control structures in banks for credit derivatives are often closer to market risk approaches than traditional credit risk.

118. The parallel in insurance is that credit derivatives and credit insurance may straddle underwriting and investment activities of the insurer, which traditionally may have separate control frameworks. In addition, as the two activities are traditionally segregated there may be practical difficulties identifying and monitoring the aggregation of credit risk assumed by each of the different methods.

¹⁶ OSFI: Credit Derivatives Review November 2001

119. This highlights the need for control structures to be more holistic in approach in both the banking and insurance sectors. However, this is not only an issue for firms, but also one for supervisors, who while finding it more convenient to ‘separate’ or categorise these activities, should not ignore or avoid assessing the risk management frameworks of insurers on a holistic basis.

‘Watchlist’ for supervisors

120. The above discussion highlights some particular issues that supervisors should look out for, not only in the context of credit risk transfers, but more generally as part of the supervisory process:

- Group transactions – not only between same sector entities (i.e. between two group insurers) but cross sector (i.e. between insurance and banking arms of the group);
- Skills, knowledge and experience required by firms in relation to credit risk management. For example, are appropriate credit risk management procedures in place for the investment activities undertaken?
- Practical supervisory issues when the conglomerate group includes one or more Reinsurers as not all jurisdictions supervise reinsurers.
- Consideration may be needed to ensure that there is not undue reliance placed on ratings agencies in the context of decision-making.

Annex 1: Definitions of credit risk transfer instruments

Credit derivatives

'Credit derivative' is a generic term for products that transfer credit risk. Typically, a credit derivative would provide for a payment upon occurrence of a credit event. The credit event is generally one of those foreseen in ISDA documentation - a standard short form has become in widespread use from 1999¹⁷. The credit event will generally include a failure to pay or insolvency. Credit derivatives may therefore serve a similar purpose to credit insurance, whereby an insured seeks to obtain cover against potential losses due to a debtor's failure to pay.

The fundamental distinguishing feature of credit derivatives is that the economic risk is transferred rather than the legal title to the assets. Credit derivatives originated in the early 1990s and have grown in complexity since. The PwC guide to Credit Derivatives¹¹ recently described the evolution of credit derivatives as a continuum starting with:

- traditional products, such as guarantees, asset swaps, loans, bonds;
- vanilla credit derivatives, including credit default swaps, total return swaps, and credit-linked notes;
- vanilla hybrids, including digitals, basket/correlation trades, and step up/down;
- exotic credit derivatives, substitution, foreign exchange and leverage;
- synthetic securitisation, including structured products, leveraged notes and collateralised debt obligations.

Most participants would probably concur with the vanilla credit derivatives category but may debate whether other instruments are commonly understood as credit derivatives. This classification highlights the increased complexity of these products but also the blurred boundaries between different product categories and variations in the terminology used.

A **credit default swap (CDS)** is a contract which enables one party (the 'protection buyer') to buy protection against the risk of default of a specified reference asset issued by a specified reference entity from another party (the 'protection seller'). The protection buyer pays a regular fee or premium for the cover until a credit event occurs or until maturity (if no credit event occurs). Following a credit event, the protection buyer will receive compensation for the loss on the reference asset. The contracts are usually drafted using the confirmation document and legal definitions produced by ISDA.

¹⁷ The ISDA 1999 short form confirmation document can be found on ISDA's website at: www.isda.org. ISDA (International Swaps Dealers Association) promotes standard documentation in over-the-counter derivatives. ISDA recently published a Restructuring Supplement to the 1999 definitions as a result of market uncertainty about the meaning of 'restructuring'.

The ISDA confirmation documentation will set out the following:

- definition of the reference entity (corporate, bank or sovereign issuer);
- definition of the credit event (options include bankruptcy, failure to pay, obligation acceleration / default, repudiation/moratorium and restructuring); the credit event may be linked to a particular reference asset;
- settlement mechanism: the credit event payment can be a cash amount (usually par minus recovery value) or a physical delivery; in a physical settlement contract, the protection buyer can deliver the defaulted asset or other assets ranking pari passu with the reference asset in exchange for par in cash from the protection seller. Many credit default swaps are based on physical delivery.

A credit default swap is deemed an unfunded credit derivative as it leaves the protection buyer exposed to the failure of the protection seller.

A **credit linked note (CLN)** is a bilateral security containing an embedded credit derivative (i.e. the credit derivative cannot be separated from the fixed income instrument). The note is linked to both the creditworthiness of the issuer and that of the underlying obligation under the credit derivative; the investor (or protection seller) will receive an increased, regular coupon payment and will also receive the par value of the note at maturity if no credit event has occurred. If the reference asset defaults, the net amount received by the investor at maturity is reduced. Credit-linked notes are deemed funded credit derivatives since the protection buyer (i.e. the issuer of the note) receives payment upfront from the protection seller and thus is not exposed to that counterparty.

A credit-linked note can be issued through a **Special Purpose Vehicle (SPV)** rather than on a bilateral basis. The sponsor (protection buyer) enters into a bilateral credit derivative contract with the SPV, which issues notes to investors. An SPV is a legal trust or company that is bankruptcy remote from the sponsor; any default by the sponsor will therefore not affect the investor, whose unique exposure will be to the embedded credit derivative. An SPV can be used to issue notes linked to non-credit derivative underlyings (e.g. an interest rate swap). Other credit derivatives include total return swaps¹⁸ and credit spread options¹⁹.

¹⁸ A **total return swap** is a contract where the 'total return payer' (protection buyer) transfers the cash flows on a reference asset to the 'total rate receiver' (protection seller). At inception of the swap the total return receiver pays a fixed spread over LIBOR in return for the cash flows on the reference asset. At maturity, the total return receiver must bear any decline in price and make a settlement payment to the total return payer. An increase in the market price of the reference will require a payment by the total return payer at maturity.

¹⁹ A **credit spread option** is an option contract that allows two parties to leverage off their credit perceptions on a security - usually floating-rate so that changes in the price are mostly due to changes in the credit spread. A credit put option grants the option buyer the right to sell the reference asset to the option seller at a pre-agreed price.

Collateralised Debt Obligation (CDO)

A CDO is a security whose payoff is derived from the credit performance of a portfolio of debt obligations – a variation of an *asset-backed security*. The objectives of the sponsor of a CDO are either to obtain protection against credit risk, or to earn profits from managing and trading in a portfolio of credit-risky assets (*arbitrage CDO*). In the former case, a bank may sponsor a CDO to which it transfers credit risk in its loans to the CDO through a credit derivative contract or the outright sale of the loans to the CDO. The economic motivation for the transfer could be to exploit the bank's funding cost advantage, differences in the pricing of credit between the bank loan market and the capital market, or regulatory capital arbitrage. In an arbitrage CDO, the sponsor retains an equity participation in the CDO with the objective of earning a profit from actively trading the assets of the CDO. Such trading will be profitable when the sponsor is able to exploit intertemporal differences in the pricing of credit risk, or arbitrage inconsistencies in the pricing of related debt securities. For CDO investors, a CDO may offer exposure to credit risk in sectors or types of credit that the investor may not have direct access to, or offer risk-return combinations that are not as easily obtained in other ways (see below).

A CDO has the following features: an investment vehicle, unbundling of cash flows from the underlying portfolio into separate tranches, a bankruptcy-remote structure, and a diversified portfolio of underlying assets.

Funded investment vehicle

A CDO is most often a funded vehicle in which an investment of principal is made by the beneficiaries of the CDO. In a *non-synthetic CDO*, the invested funds are used to purchase the debt obligations (such as loans or bonds) that comprise the portfolio of underlying assets.²⁰ In a *synthetic CDO*, a credit derivative contract (or contracts) provides the credit exposure that the CDO investors are seeking, while the invested funds are used to purchase a portfolio of high credit-quality assets, such as government securities. The cash flows from the high-quality assets and the credit derivative together produce the income that pays the interest coupon to the investors in the CDO. In addition, the high-quality assets are used to back the obligations of the CDO to the protection buyer in the credit derivative contract. If a *credit-event* occurs, the assets are sold to fund the payment to the protection buyer, and a corresponding principal amount of the CDO investors is written off. Thus, the funded nature of a synthetic CDO provides built-in collateral against counterparty risk for the protection buyer in the credit derivative contract. At maturity, any remaining assets are sold to fund whatever principal payments are owed to the investors. A second purpose served by the high-quality assets is in the creation of a funded investment vehicle that allows participation by

²⁰ The term CDO has become the conventional description of the instrument, as the market has come to accept practically any underlying asset that has credit risk. While the terms collateralised bond obligation (CBO) and collateralised loan obligation (CLO) are still occasionally used for deals in which the underlying assets are bonds and loans, respectively, the term CDO has become standard usage. This definition reflects the growing practice of assembling a reference portfolio for a CDO that may contain a mix of bonds, loans, and even credit derivatives.

those investors or fund managers who are prohibited from entering into derivative contracts by regulation or investment guidelines but are not prohibited from buying debt securities.

Tranches differentiated by seniority of claims

Cash flows from the underlying assets in a CDO are unbundled into tranches offering different risk and return combinations. The cash flows are apportioned among the various tranches according to seniority of the tranche. The most senior tranche has first claims on the underlying cash flows, while the most junior tranche receives payment only if any cash flow or assets remain after the more senior claims are met. Thus, the senior tranche has lower credit risk than the underlying assets, while the most junior, or equity, tranche has significantly higher risk. In return for lower risk of loss, senior tranches pay lower coupons than more junior tranches, while the equity tranche receives all residual cash flows and has the prospective reward of a high return if cumulative losses are less than expected.

The most junior tranche, in effect, is a first-loss or equity tranche that absorbs losses in the underlying assets up its share of the initial principal investment. The first loss amount, or the equity tranche, is generally small and can range from one-and-a-half percent to ten percent of the total invested funds. CDO's with riskier underlying assets, require a larger equity tranche to provide the credit enhancement supporting the high credit rating necessary for the sale of the senior tranche.

Most CDO structures have one or more mezzanine tranches that absorb losses after the principal share of the equity tranche has been exhausted. The mezzanine tranche can range in size from six to fourteen percent of total invested funds. The mezzanine tranche, normally, has a credit rating in the BB to A range.

The most senior tranche will suffer a loss only after cumulative losses have exhausted the interest and principal of all the subordinate tranches. The senior tranche, usually varies in size from 75 to 90 percent of a CDO, and has a credit rating of AAA. (However, CDO's with a senior tranche of only 50 percent can be found. These are deals with the more risky underlying assets.)

The unbundling of cash flows into tranches of varying seniority enlarges the population of investors who might purchase the CDO and also creates an incentive device that can mitigate moral hazard and agency problems. First, by offering a senior tranche that offers lower risk of loss than the underlying assets, the CDO can attract investors who would otherwise not be willing to hold the total credit risk of the underlying assets. In addition, by creating tranches with higher risk and return prospects than the underlying assets the CDO can also attract investors who can obtain from the junior tranches a leveraged return on the underlying assets.²¹ This leveraged return on the diverse pool of underlying assets in the CDO may be

²¹ The leveraged return is created by the first-loss and second-loss structure of the junior claims. The most levered return is earned by the equity tranche. If the equity tranche is two percent of the CDO, then it is exposed to 100 percent of the first two-percent of losses on the underlying assets. If losses are less than expected, however, the equity tranche investors receive all residual cash flows after the coupons of the higher tranches have been paid off. Thus, returns to the equity tranche decrease or

attractive to investors who do not possess the scale to acquire similarly diverse investments directly.²²

Finally, when the sponsor of the CDO retains the first-loss or equity tranche, an incentive is created to align the interests of the sponsor with the CDO investors.

Bankruptcy-remote vehicle

A key feature of a CDO is its stand-alone nature separating it from the bankruptcy risk of its sponsor. The legal form of a CDO is a special-purpose-vehicle (SPV) or trust that has exclusive ownership of the underlying assets and liabilities of the CDO on behalf of the investors who purchase shares or securities issued by the SPV. Thus the performance of the CDO and the payments to its investors depends only on the assets and liabilities of the CDO. This structure insures that the performance of the CDO is divorced from the financial condition or bankruptcy of the sponsor who has transferred the credit risk in the underlying assets to the CDO.

Diversified pool of underlying credits

The portfolio of credit exposures in a CDO typically has a fair degree of diversification. This diversity is required to make the CDO an attractive investment, and the credit risk rating assigned to a CDO by rating agencies depends in large part on the reduction in credit risk produced by a diverse pool of assets. The diversification is produced by assembling a reference portfolio containing a large number of distinct credit exposures from a variety of industry sectors. At origination, the assets in a CDO reference portfolio typically have credit ratings of AA at the high end and BB at the low end, with the bulk of assets in the BBB range, and a weighted average rating of BBB. (Portfolios with lower rated credits are also assembled, however, especially for arbitrage CDOs.)

Source: CGFS Publications No 20: "Credit risk Transfer", January 2003

In a **single-name** credit derivative, the reference entity is a single obligor. **Multiple name** credit derivatives (sometimes known as **basket** or **portfolio products**) are referenced to more than one obligor. In multiple name credit derivatives, two common structures exist. Under some contracts, the contract pays out on the first asset to default in the basket and then terminates (**first-to-default**). Under other contracts, protection is allocated proportionately amongst assets in the portfolio.

A **synthetic securitisation** is a structured transaction that involves the transfer of risk on a portfolio of assets via a credit default swap or credit-linked note. Synthetic securitisation

increase at a disproportionately high rate as the underlying assets lose or gain value. The returns to the mezzanine or second-loss tranche are levered in a similar but less severe fashion.

²² While a leveraged return can be generated through repo financing of the debt securities, the diversity can be created only through purchases of a large number of diverse securities. In contrast, the purchase of share in a CDO is a smaller scale investment that still provides the diversification benefits of the CDO's diverse underlying portfolio.

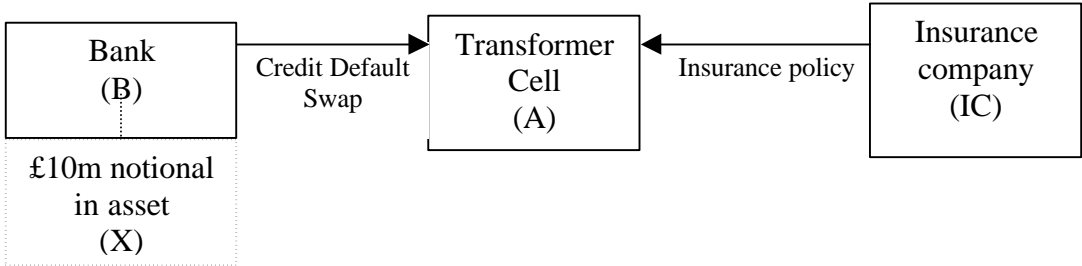
structures tend to be very bespoke. Non-synthetic structures tend to be more costly to set up as it is necessary for the originators to ensure the true transfer of the underlying assets to an SPV; therefore, they may prefer to achieve the same objective in a synthetic form - i.e. by transferring the risk using credit derivatives. The use of credit derivatives makes it easier for banks to package portfolios to appeal to a variety of investors. The underlying portfolio can include a variety of assets including commercial loans or corporate bonds as well as asset-backed securities, and may be static or actively managed. In an actively managed portfolio, a portfolio manager will have the right to substitute some of the assets in the portfolio subject to certain pre-defined criteria.

Annex 2: Special purpose vehicles and transformer vehicles

As mentioned in Part 1, insurance companies are not permitted to write credit derivatives in many jurisdictions - except in limited circumstances. This prohibition has led to the emergence of so-called 'transformer' vehicles, sometimes located in offshore jurisdictions, such as Bermuda, where insurance companies are permitted under the local regulations to write non-insurance business.

A transformer is an entity in-between a bank and an insurance company that allows credit risk to be transformed into an insurable interest. The entity can be a traditional SPV or a protected cell company ('PCC'). In essence, the transformer buys protection in the form of an insurance contract from an insurer, e.g. UK-based, which is restricted in its ability to write credit derivatives directly - the insurance policy will cover the losses under the credit derivative and create the necessary insurable interest. In a PCC, each transaction will be booked in a separate cell. Figure 1 illustrates a simplified transaction, using a transformer vehicle and Figure 2 is a more detailed example. The IAIS Issues Paper²⁴ on Insurance Securitisation describes the typical structure of an asset-backed securitisation, which consists of a transfer of assets to a Special Purpose Entity ("SPE"). This paper distinguishes between a SPV and a SPE, where a SPE serves to separate the legal ownership of the assets from the originator.

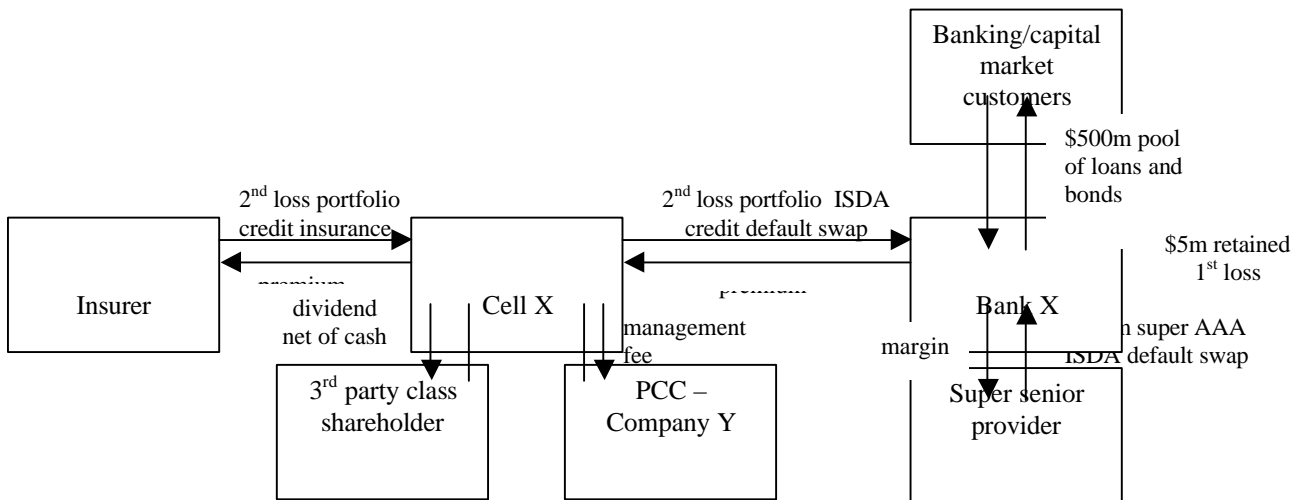
Figure 1: Transaction using a transformer vehicle



In Figure 1, the credit default swap is structured so that A must pay B a certain amount - usually the recovery amount of X, if there is a credit event. In return for the protection offered, A gets a premium under the credit default swap. A then enters into a back-to-back transaction with IC, which protects A against losses under the credit default swap. It may also be possible to structure the transaction so that the terms under an insurance policy are backed by a credit derivative. One law firm has advised companies to avoid making the contracts within a transformer completely back-to-back, to enhance the legal distinctions; from a supervisory perspective, this could arguably increase basis risk. However, it is not clear this is a legal opinion that is widely followed within the industry.

²⁴ IAIS Issues Paper on Insurance securitisation - Draft dated February 2003

Figure 2: Synthetic securitisation using credit insurance



The PCC is a recent innovation in a number of jurisdictions around the world, e.g. Guernsey, Bermuda, Cayman Islands and Mauritius. Many financial institutions, including banks have been using these vehicles to facilitate the transfer of credit risk to the insurance industry. In the December 2000 Risk supplement on ART, one bank described their use of a Bermudan vehicle, for transformation purposes. Likewise, a cell company, owned by Bank X, and located in Guernsey, was described in the International Finance Review 30/9/2000. Although the robustness of the structures has yet to be legally tested the PCC model seems to have proliferated, with many US States now enacting protected cell legislation²⁵. In addition, PCC is described within the IAIS Issues Paper²⁶ on Insurance Securitisation.

So-called carrier firms, which operate on-shore and effectively play a similar role to transformers - economically if not in the legal sense - are mentioned in a recent article by David Rule. Carrier investment firms provide an advantageous treatment for the banks that use them because they often benefit from a lower risk weight under BIS 1 rules. Such companies may be content to write a credit derivative to a bank and hedge the resulting exposure with a credit insurance policy written by an insurer. They effectively bear any basis risk or legal mismatch on their books. Carriers are likely to be subsidiaries of insurance firms, and may be started up for the purpose of avoiding regulatory restrictions on writing credit derivatives. Since the regulatory treatment under banking/securities rules can be fairly punitive, such firms must be well-capitalised - unless they gain capital relief from their supervisors, if the insurance policy is perceived as an effective hedge against the credit derivative position or if they hedge the exposure through a transformer.

²⁵ South Carolina (2000), Iowa (2000), Kentucky (2000 and Illinois (2001).

²⁶ IAIS Issues Paper on Insurance Securitisation - Draft dated February 2003

Issues with transformers

It is clear that there are legal risks associated with credit risk transfers; many of these risks will be familiar to market participants and are part and parcel of most financial contracts. However, like other alternative risk transfer products, there are legitimate questions about which regulatory box they fall into - this is not trivial as this may have an impact on the regulatory treatment of the transaction and could have implications on the enforceability of the contracts in certain jurisdictions.

Documentation issues

The documentation of these structures and instruments is absolutely crucial. The credit derivatives documentation is relatively stable due to the widespread market acceptance of ISDA documentation. Recent defaults have caused the documentation to be tested, and the industry has showed a good level of co-operation to reach a consensus where grey areas have emerged. ISDA is the forum to which market participants turn to following credit events -e.g. the Russian default encouraged market participants to agree a new ISDA definition for grace periods in 1999, the debt restructuring of Conseqo in 2000 led to the publication of an ISDA supplement, specifically addressing restructuring and ISDA has also been looking at the issues surrounding the demerger of UK National Power²⁷; more recently ISDA sought a legal opinion following the default of Railtrack on the eligibility of convertible bonds for delivery. The default of Armstrong highlighted more basic documentation issues - in this instance, several market participants were involved in disputes regarding the exact name of the reference entity underlying the protection (the shorthand used by traders meant that they had effectively bought and sold protection against a different entity from that which they intended). Documentation is likely to become more secure with some major investment banks recently agreeing to 'reduce the moving parts' of standard ISDA confirmation forms (from 30 negotiable items down to 8). However, the structural documentation used in portfolio credit derivatives and transformers may be a cause for concern, with some players not really understanding the process.

²⁷ 'The Credit Derivatives Market', by David Rule, *Financial Stability Review*, June 2001

Annex 3: Effect of a credit default swap transaction on a bank's regulatory capital

It is assumed that bank A holds \$10m worth of corporate single-name A-rated debt, X, in its banking book. The following shows the effect on the bank of buying protection through a credit default swap from the following:

- A-rated OECD bank, B, from a AAA-rated country
- AAA-rated insurance company, IC

The impact is simulated under BIS I and BIS II regulations. Under BIS 1, the risk-weight of B is 20%, as it is an OECD bank. IC is weighted as a corporate, at 100%. Under BIS 2, the risk-weights are related to the external ratings of the counterparties.

The credit default swap will pay if X defaults; in effect, the contract will provide for a payment equivalent to the amount lost if the bank holds the exposure on its book (normally notional minus recovery rate). A pays a premium for the protection.

Scenarios under BIS 1	Notional	X risk-weight		Capital charge
A holds X	\$10M	100%	X 8%	\$800,000
A holds X and buys protection from B	\$10M	20%	X 8%	\$160,000
A holds X and buys protection from IC	\$10M	100%	X 8%	\$800,000

Scenarios under BIS 2	Notional	X risk-weight		Capital charge
A holds X	\$10M	50%	X 8%	\$400,000
A holds X and buys protection from B	\$10M	20% or 50% ²⁸	X 8%	\$160,000 or \$400,000
A holds X and buys protection from IC	\$10M	20%	X 8%	\$160,000

²⁸ Two options are available for the risk-weights attributable to banks under BIS 2; one based on the rating of the country of incorporation, the other based on that of the bank itself. Only one option can be implemented by a given supervisor.

Annex 4: Differences in the treatment of credit risk under BIS 1, BIS 2 for banks and EU solvency regulations for insurance companies

In this annex, we make an attempt to compare the treatment of credit risk under banking and EU insurance solvency regulation. Simplifying assumptions have been made as follows:

- a) Insurance premiums assume probability of loss, as implied by the external rating of the exposure, multiplied by the nominal value of the exposure plus a 5% margin for risk and profit; this is a rough estimate of the assumptions which may be made by a well-managed firm. There are no quantitative requirements on the actual provisioning rules for general credit insurance and so this area tends to be linked to local accounting practices;
- b) Claims reserves assume full reserving based on probability of loss, as implied by the external rating of the exposure times the nominal value of the exposure;
- c) Credit equalisation reserves are based on 75% of the difference between premiums and claims reserves;
- d) The implicit capital requirements under EU rules are measured as the sum of the solvency margin requirement, technical reserves and credit equalisation reserves.
- e) No provision has been set against the banking exposures. Provisions for bad debt were assumed to be nil on the basis that specific provisions are only allowed when a loss has actually occurred. For simplification purposes, no operational risk charge has been assumed in the calculation of the capital requirement under the proposed Basel 2 rules.

In the figures in this annex, the vertical axis represents the implicit capital requirements. The horizontal axis represents 7 ratings categories, with implied probabilities of default as set out below:

	1	2	3	4	5	6	7
Rating	AAA	A	BBB	BBB-	BBB-/ BBB+	CCC	higher risk
Probability of default	0.03%	0.10%	0.20%	0.70%	1.00%	5.00%	20.00%

