

Financial Services Authority

# Cross-sector risk transfers

May 2002



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The Financial Services Authority invites comments on this Discussion Paper. Comments should reach us by 31 July 2002.

Please send comments by electronic submission using the e-mail address:  
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Alternatively, comments may be sent in writing to:

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**It is the FSA's policy to make all responses to formal consultation available for public inspection unless the respondent requests otherwise.**

# 1 Executive summary

- 1.1 The credit risk transfer market is growing rapidly. The products used to transfer risk have become increasingly complex. Some of the more exotic transactions generate products with very high risk characteristics. It is clear that financial institutions without long experience of credit derivatives have been entering the market. There has also been evidence of risk being transferred across sectors and into unregulated institutions. This raises a question of whether differences between the regulatory regimes applying to different sectors are, at least in part, driving this business.
- 1.2 For these reasons, the credit risk transfer market has attracted the attention of regulators both nationally and internationally. This has been a topic of discussion in the Financial Stability Forum and the Forum has encouraged initiatives in this area.
- 1.3 Against that background, we decided to research the market in London, which is one of the most important centres for this activity. Our aim was to ascertain how well the firms involved were understanding and managing the risk, and whether there were any aspects of the regulatory regime which were driving this activity.
- 1.4 Our research confirms that the market has been growing rapidly. The total global credit derivatives market in 2001 was over \$1 trillion, from a base of \$180 billion in 1997. Insurance companies were said to have a 20 to 25 per cent market share, as risk buyers. In contrast, there has been little transfer of insurance risk to the capital markets to date.
- 1.5 The paper concludes that, in general, the firms who are active in the market understand the nature of the transactions, although there is some evidence that a few insurance companies that have been involved have “burnt their fingers”. Much of this naïve capacity has now left the market, however.
- 1.6 Our research also shows that the main drivers of the growth seem to have been the different risk appetites of different companies in different sectors,

rather than capital regimes themselves. There is however some evidence of risk transfer to unregulated firms and to firms in offshore centres, which may owe something to the different regulatory regimes in force there.

- 1.7 Chapter 2 introduces our approach to this work. The findings of our study on credit risk transfers are in Chapter 3. Chapter 4 focuses on insurance risk transfers and Chapter 5 draws our conclusions. In Chapter 6 we suggest a list of questions on which we would welcome feedback.
- 1.8 The research has produced some important lessons for firms who wish to be active in this market. The main ones are:
  - there should be greater senior management scrutiny of these activities;
  - firms must make sure that they understand the products, including the documentation, pricing and valuation risks in these instruments; and
  - firms must ensure that they understand if they have actually transferred the risk: for example, is the risk transferee able and willing to pay?
- 1.9 From a regulatory point of view, there are some lessons for the design of capital regimes in the future. And it is also important for regulators to monitor the risk management of firms involved in the business. So we will in future scrutinise, as part of our firm-specific supervision, where the firms are taking material risks in these markets and where they may not be adequately managing these risks.
- 1.10 We will also consider whether enhanced regulatory and reporting requirements would help us track developments in these markets. And we will continue to participate actively in international discussions and initiatives to discover more about the cross-border aspects of these transfers, where the risks ultimately reside, and whether adequate capital is held against them.
- 1.11 We would be interested in comments on the paper and the suggestions in it.

# 2 Introduction

- 2.1 The recent growth of products that facilitate the transfer of risk between sectors of the financial services industry has generated media and industry debate, and attracted the interest of regulatory organisations worldwide.
- 2.2 Banks transfer credit risk to each other, and to other types of firm, in various ways. This paper focuses primarily on credit risk transfers from banks to insurance companies, and on some of the complex and innovative structures that have been used for this purpose.
- 2.3 Insurance companies take on credit risk from banks in two main ways:
  - by insuring or reinsuring credit risk, whereby the insurance company underwrites or guarantees the risk; or
  - by investing (as part of their investment strategy) in instruments that transfer the credit risk.
- 2.4 This market is evolving rapidly, and there is currently no single type of deal. This makes it difficult to define, monitor and quantify this market.
- 2.5 The other focus of this paper is on the transfer of insurance risk from insurance companies to the capital markets, primarily using catastrophe bonds.
- 2.6 The objective of the project was to gain a better understanding of:
  - the size and drivers of these markets (including any perceived trends),
  - the roles of different market participants,
  - the mechanics of the transfers,
  - the perceived risks and benefits for regulated firms,
  - the risk management practices associated with these transfers, and
  - the risks to our objectives.

- 2.7 We obtained the information in this report through desk-based research and interviews with selected market participants (16 on credit risk transfers and 17 on insurance risk transfers), undertaken mostly in the last quarter of 2001. So, the report does not claim to be an exhaustive survey of the market and should be interpreted accordingly.
- 2.8 We are most grateful to all those we spoke to for providing us with information and views on market developments.
- 2.9 We are publishing this paper in the interest of transparency. Publication also provides an opportunity for market participants to contribute to our understanding of the current structure of the market and to influence our regulatory response. We may, as appropriate, publish a statement in response to industry comments.
- 2.10 We would welcome feedback, particularly on the questions in Chapter 6, by 31 July 2002.

# 3 Credit risk transfers

- 3.1 This project dealt with two types of cross-sector risk transfer: credit risk going from banks to insurance companies, particularly through credit derivatives, and insurance risk being transferred to the capital markets. This chapter describes the findings of the first part of the project.

## **Scope of the project**

- 3.2 The project focused on new forms of transfers of credit risk from banks or investment banks to insurance companies. We took a broad view of credit risk-taking by insurance companies, including financial guarantees and reinsurance but excluding traditional credit risks, for example investments in bank debt. That said, the main focus was on insurance companies' involvement in credit derivatives (single-name and portfolios) and Collateralised Debt Obligations (CDOs).
- 3.3 For the insurance company, credit risk is defined as the exposure to losses due to the default of an obligor of the bank – which may be a borrower, an issuer of an asset, or a counterparty of the bank. The types of transactions in which the project was interested are defined further in the next section.
- 3.4 The project's aims were to gain a better understanding of:
- the size and drivers of these transfers (including any perceived trend);
  - the roles of different market participants;
  - the details of specific transactions;
  - the perceived risks (for example legal, financial) and benefits for regulated firms;
  - the risk management practices associated with these transfers; and
  - the risks to our objectives.

- 3.5 In the course of the work, we met 16 market participants to discuss credit risk transfers, including consulting firms, rating agencies, insurers, investment and retail banks.

## **Means of credit risk transfers**

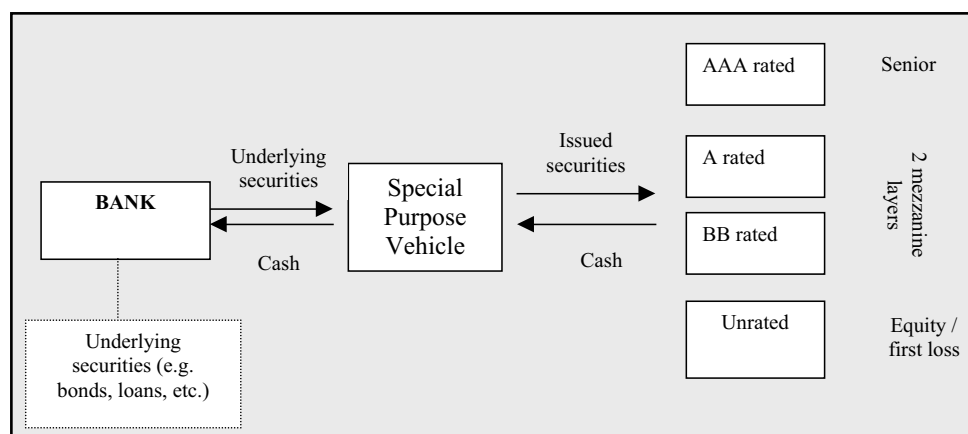
- 3.6 This section highlights significant areas of credit risk transfers between banks and insurance companies. It first looks at how banks can transfer credit risk and describes the main characteristics of CDOs and credit derivatives. It then examines how insurance companies acquire exposures to credit risk in traditional investment and underwriting activities. The section concludes by summarising the most significant transactions between the two sectors.
- 3.7 This section illustrates that terminology may disguise the similarities between different areas of the financial markets – banking, capital and insurance markets. Insurance companies have always been able to acquire exposures to credit risk as part of their normal investment and underwriting activities. What is new is the increasing transfers of packaged credit risk from banks to insurance companies, in both funded and unfunded form. Given the regulatory restrictions on insurance companies' derivative activities, unfunded transactions often require the intermediation of a subsidiary or transformer vehicle, so insurance companies can treat the transaction as an insurance activity.

### **Means of credit risk transfers for banks**

#### **Asset Transfer**

- 3.8 Banks can transfer credit risk by transferring the legal rights to assets either directly (for example traded loans) or to a remote Special Purpose Vehicle (SPV) that issues a series of notes against the performance of the underlying assets (for example mortgage-backed securities). The transfer of the legal rights to the assets to an SPV and issue of notes by the SPV is called a securitisation.
- 3.9 CDOs have become a growing feature of the securitisation market. They involve the transfer of a portfolio of loans (Collateralised Loan Obligation or CLO) or bonds (Collateralised Bond Obligation or CBO) or a mixture of the two (CDO), and a tranching of the risk to appeal to different investors.
- 3.10 Lower tranches bear the greatest risk of loss. The prospectuses in CDO issues will typically include information on the underlying obligations, diversity scores, and the ratings of the different notes. Figure 1 shows a stylised cash CDO structure.

**Figure 1: Cash collateralised debt obligation**



- 3.11 Holders of senior tranches have priority of repayment over the more junior tranches and the transactions can be made up of five or more tranches. The first loss tranche (or equity tranche) will be unrated and carries most of the risk in the structure. The senior tranche is normally structured to be AAA-rated and makes up the bulk of the transaction – it could be between 70% and 90% of the notional amount depending on the structure. However, it will carry very little risk, and would only be called upon if there were a severe downturn in the economy or some other systemic event.
- 3.12 The riskiness of the layers between the first loss and the senior tranches (known as mezzanine layers) depends on the structure – the size of the first loss tranche and the riskiness of the underlying portfolio. But the mezzanine layers may also be called upon, in particular in a downturn. Some of the participants we met were aware of or had suffered losses on these tranches. In effect, the lower tranches provide leverage to the whole structure.
- 3.13 Market participants tend to use the various terms interchangeably. ‘CDO’ is used to refer to the obligations that an SPV issues as well as to the SPV that holds the assets and issues obligations. Market participants also use CDO to refer to various structures, including synthetic structures where the risk has been transferred through a credit default swap (see paragraph 3.22).
- 3.14 A distinction is also made between balance-sheet CDOs and arbitrage CDOs. In a **balance-sheet CDO**, the purpose is for an originator to manage its balance-sheet by freeing up economic or regulatory capital. In an **arbitrage CDO**, the purpose is to allow asset managers to expand their assets under management and to meet investors’ appetite for certain tranches – in particular the equity tranche. The underlying assets are bought (in physical or synthetic form) for issuing the CDO.
- 3.15 The underlying portfolio of a CDO can include various 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, the

arranger will have the right to substitute some of the assets in the portfolio subject to certain pre-defined criteria.

#### Credit derivatives

- 3.16 Banks also transfer credit risk synthetically through credit derivatives. 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. A publication<sup>1</sup> recently described the evolution of credit derivatives as a continuum as follows:
- *traditional products*, such as guarantees, asset swaps, loans, and 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; and
  - *synthetic securitisation*, including structured products, leveraged notes and collateralised debt obligations.
- 3.17 This classification highlights the increased complexity of these products, but also shows the blurred boundaries between different product categories and variations in the terminology used.
- 3.18 The most common form of credit derivative is the credit default swap. A **credit default swap** (CDS) is a contract which enables one party (the ‘protection buyer’) to buy protection against the risk of default of an asset issued by a ‘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. A credit default swap is deemed to be an **unfunded** credit derivative, as it leaves the protection buyer exposed to counterparty risk from the failure of the protection seller.

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1 *The Financial Jungle, A guide to credit derivatives*, by PriceWaterhouseCoopers, 2001.

- 3.19 The contracts are usually drafted using the standard confirmation document and legal definitions produced by ISDA.<sup>2</sup> The ISDA confirmation documentation will set out the following:
- definition of the **reference entity** (corporate, bank or sovereign issuer);
  - definition of the **credit event** (such as bankruptcy, failure to pay, obligation acceleration/default, repudiation/moratorium and restructuring). The credit event may be linked to a particular reference asset; and
  - the **credit event payment**, which can be a cash settlement (usually par value 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.
- 3.20 A **credit linked note** (CLN) is a security containing an embedded credit derivative (that is to say 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 to be funded credit derivatives since the protection buyer (that is the issuer of the note) receives payment upfront from the protection seller and so is not exposed to that counterparty. Other credit derivatives include total return swaps<sup>3</sup> and credit spread options.<sup>4</sup>
- 3.21 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 among assets in the portfolio.

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2 The International Swaps and Derivatives Association (ISDA) promotes standard documentation in over-the-counter derivatives. The ISDA 1999 short form confirmation document can be found on the ISDA website at: [www.isda.org](http://www.isda.org)

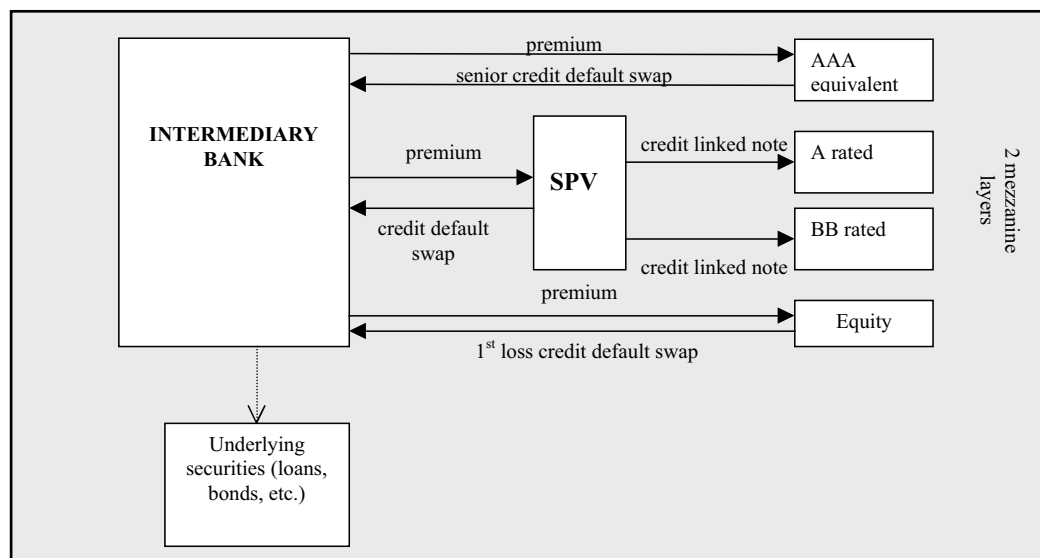
3 A **total return swap** is a contract where the 'total return payer' (protection buyer) transfers the cash flows on a reference asset to the 'total rate receiver' (protection seller). The total return payer makes a periodic payment to the total return receiver of all cash flows arising from the asset, plus any increase in the market value of the asset. At the same time, the total return receiver makes a payment of a fixed spread over LIBOR, plus any decrease in the market value of the reference asset. If there is a credit event, the contract will usually terminate and the credit event payment will be calculated as though the next payment date had been brought forward.

4 A **credit spread option** is an option contract which 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.

## Synthetic securitisations

- 3.22 A synthetic securitisation is a structured transaction that involves the transfer of risk on a portfolio of assets through a credit default swap or credit-linked note. Synthetic securitisation structures tend to be bespoke and are often referred to as synthetic CDOs. An example is shown in Figure 2. Traditional cash securitisations 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. So, they may prefer to achieve the same objective in a synthetic form – that is, 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 be substantial, for example a transaction could have a notional amount of over \$1 billion.

**Figure 2: Synthetic securitisation**



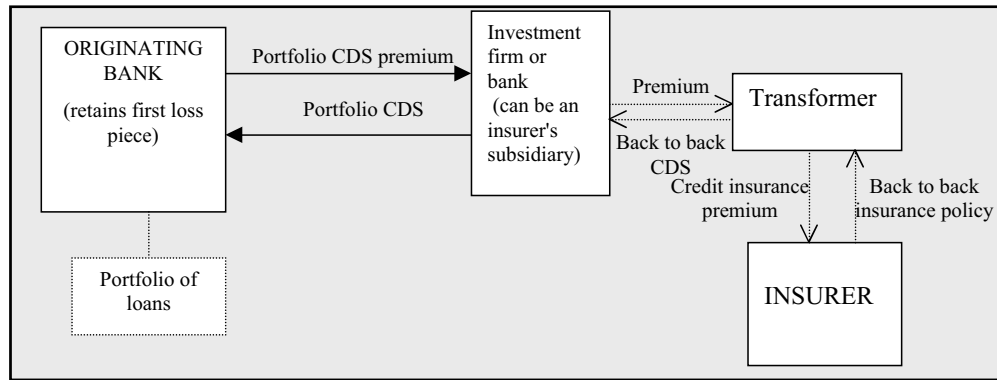
## Ways in which insurance companies acquire credit risk

- 3.23 Insurance companies can acquire credit risk either through their investment or through their underwriting activities. Insurance companies, in particular life insurers, are major institutional investors in all types of assets, while general insurers underwrite credit risk through insurance or reinsurance.
- 3.24 Insurance companies provide insurance against the risk of financial loss (for example, trade indemnity insurance, where an insurance company provides protection to companies against the risks of unpaid commercial debts). Because these transactions constitute insurance business, they may be subject to standard insurance contract law, including the need for the insured to incur a loss, and may be invalidated if the insured has failed to disclose relevant or known facts. In this sense, the risks are generally different from typical banking business.

### **Credit risk transfers between the banking and insurance sectors**

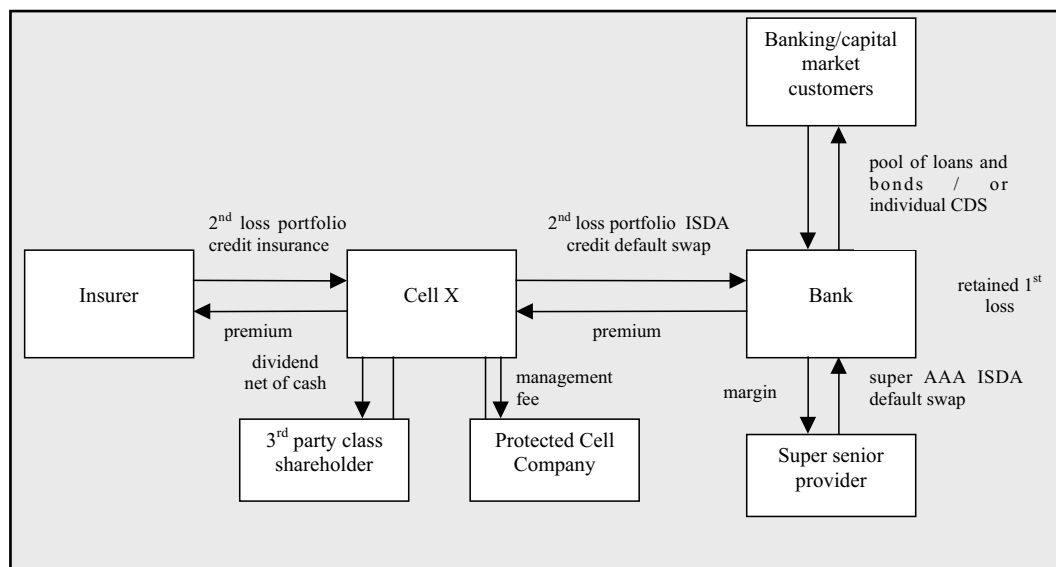
- 3.25 As institutional investors, insurance companies may take on exposures to asset securitisations, including CDOs.
- 3.26 Insurance companies are also involved in credit derivative activities – either directly in connection with their insurance activities or through the transformation of the exposure into an insurable transaction. They also underwrite guarantees. Insurance companies are restricted in their ability to underwrite credit derivatives in the UK (see paragraph 3.108). However, insurance companies may insure credit default swaps through a Protected Cell Company (see Annex A), or through overseas subsidiaries in jurisdictions that allow insurance companies to undertake financial activities, including credit derivatives (for example Bermuda). Insurance groups may also set up intermediate investment subsidiaries to facilitate their involvement in these activities.
- 3.27 This ‘transformation’ process enables insurance companies to bypass regulatory restrictions on derivative activities. Originators, if they have dealt with the investment subsidiary of an insurance group, may not be aware that their protection is ultimately hedged out by a credit insurance policy. However, the originator or an intermediary, usually an investment bank, may also facilitate the process of transformation. The rationale here is to tap the insurance market for credit protection. In effect, portfolio credit derivatives are providing a platform for the convergence of securitisation, derivative and insurance ‘technologies’.
- 3.28 So transformers enable banks to hedge exposures on their books with insurance companies, through portfolio credit derivatives. Such structures are typically broad portfolios of names where the yield is effectively the only variable. Figure 3 shows a typical transaction. In this example, there is no transfer of the first loss tranche. Based on our meetings, this appears to be a typical practice, and is a requirement from many protection sellers. Although, unless the requirement is built into the contract, it is always possible, in theory, for the originator to buy first loss protection without the protection seller knowing.

**Figure 3: Portfolio credit default swap**



3.29 Another method of transferring credit risk from banks to insurers is synthetic securitisation. Some of the growth in the synthetic securitisation market came from trading activities where a bank or intermediary buys and sells protection using credit derivatives – but without holding the underlying assets on its book. The growth of trading book synthetic securitisations appears to be linked to demand for particular credits by the protection sellers, and the structure is often driven by the mezzanine tranche. The mezzanine tranche may be structured as a credit-linked note, or all the tranches may be transferred through unfunded transactions. Figure 4 shows a stylised example of a synthetic securitisation, but it is important to note that most synthetic transactions are bespoke, often involving several months of negotiation by the different parties. We should be cautious about making general statements from a limited number of tailor-made transactions.

**Figure 4: Synthetic securitisation involving an insurance company**



Source: Based on a structure published in *Insurance Day*, October 23 2001

## Public information on credit risk transfers

- 3.30 This section summarises publicly available information on the volumes of credit derivatives and CDOs, the participants in the markets, and the spread of credit derivative products. The information relates to the credit derivatives markets and not solely to cross-sector risk transfers. It highlights significant growth in these markets in the last few years, although they remain fairly limited relative to other derivatives markets or the market for credit generally. Some of the public information available points to the growing involvement of insurers in these markets and a shift from plain-vanilla credit derivatives to a wider range of products, in particular synthetic CDOs.

### Credit derivatives volumes and expectations of future growth

- 3.31 Table 1 below summarises the surveys on the volumes of credit derivatives and expectations of future growth. All surveys suggest that the global credit derivatives market is still growing; the various estimates are fairly consistent and suggest that notional amounts exceeded \$1 trillion in 2001. Lehman Brothers' estimates are significantly higher than some of the other surveys, but include asset swaps – which are not consistently included elsewhere. The figures are expected to remain on a strong upward trend compared to more mature derivatives markets. However, other derivative products dwarf the credit derivatives market in terms of volume. Total notional outstanding volumes of interest rate and currency derivatives were estimated at \$55 trillion in the first half of 2001 (ISDA). Because of significant structural differences between these different products, any such comparison should be viewed with extreme caution, although it provides at least some idea of scale.

**Table 1: Notional outstandings of credit derivatives (global estimates)**

Global Estimates (notional amounts, \$bn)	Year							
	1997	1998	1999	2000	H1-01	2001	2002	2003
BBA 1997/1998 Survey	180	350		740				
BBA 1999/2000 Survey			586	893			1581	
BBA 1999/2000 Survey*			668	1009			1766	
Lehman Brothers*			1025	1522		1971	2554	3310
Risk survey*†				810		1398		
BIS					693			
ISDA					631.5			

\* These figures include asset swaps.

† Risk estimated that they captured around 80% of the market.

Figures in italics represent forecasts made at the time of the survey.

#### Source

British Bankers Association (BBA) *Credit Derivatives Report 1997/1998*

British Bankers Association (BBA) *Credit Derivatives Report 1999/2000*

Lehman Brothers estimates, <http://www.lehman.com/fi/sct/index.htm> (Lehman Brothers, CCO, BBA)

Risk Magazine, 'Credit derivatives: vanilla volumes challenged' by Navroz Patel, February 2001, and 'The Vanilla Explosion', February 2002

Bank of International Settlements (BIS), *Triennial Central Bank Survey of OTC derivatives*

International Swap Dealers Association (ISDA), *Mid-Year Survey of OTC derivatives, 2001*

## Location of the market

- 3.32 According to the 1999/00 BBA survey, the London market accounts for close to half of the credit derivatives market by value of trades. Market participants estimate that London accounted for \$272 billion (46% of the global market) in 1999. New York is the other main centre of activity for credit derivatives. A recent article in 'The Asset' (28 December 2001) suggested that the Asian market is growing (perhaps crossing the \$40 billion mark, excluding Japan), with regional hubs forming in Hong Kong and Singapore.

## CDO volumes

- 3.33 In parallel with the growth of credit derivatives, CDOs have increased in volume as an alternative asset class for institutional investors. Table 2 summarises surveys on the volumes of CDOs. Variations in estimates can be attributed to different definitions (see paragraph 3.13) and difficulties in estimating the size of the bilateral market. Non-bank participants may be involved in issuing CDOs.
- 3.34 The European CDO market is estimated to have tripled in size between 1999 and 2000, from \$16 billion to \$52 billion.<sup>5</sup> The market, including collateralised bond/loan obligations (CBOs/CLOs), topped the \$25 billion mark in the first six months of 2001,<sup>6</sup> increasing by more than 30% over the same period a year earlier with more than 20 transactions rated. One of the strongest trends to emerge in Europe is the use of credit derivative or synthetic technology to transfer credit risk in portfolios, in particular in Germany.<sup>7</sup>

**Table 2: Global notional outstandings of CDOs**

Global Estimates (notional amounts, \$bn)	Year						
	1997	1998	1999	2000	2001	2002	2003
Lehman Brothers	\$68	\$149	\$225	\$250	\$370	\$508	\$666
Wall Street Journal				\$400			
Bank of England				\$300-\$400			

Source

Lehman Brothers estimates, <http://www.lehman.com/fil/sct/index.htm> (Lehman Brothers, CCO, BBA)

Wall Street Journal (WSJ), "Debt damage: Losses spread on specialised Bond products" by Mitchell Pacelle and Gregory Zuckerman July 31 2001

Financial Stability Review, Bank of England, 'Cross-sector risk transfers' by David Rule, December 2001 (Bank of England, Bond Association)

Figures in italics represent forecasts made at the time of the survey

5 'European Securitization Market Ends Millennium on a High Note and Looks Positively to 2001', Standard & Poor's 24 January 2001.

6 'European CDO Market Tops \$25 Billion Mark in the First Half of 2001; Further Growth Expected', Standard & Poor's July 2001.

7 'Clarity in Regulation to Recharge German Securitization After First Half Lull', Standard & Poor's September 2001.

## Market participants

- 3.35 The BBA Credit Derivatives Report 1999/00 survey revealed an increasing use of credit derivatives. Of particular interest is the increased market share of insurers, particularly as sellers of credit protection. Although banks were still the main sellers of protection in 2000 (47%), their market share was expected to drop to 38% by 2002, reflecting the forecast increase in insurance company and corporate involvement in the market (see Table 3). The BIS Survey similarly noted that the market for credit derivatives is diversifying beyond transactions aimed at the restructuring of banks' balance sheets with the entry of new market participants such as insurance companies. According to the BBA survey, banks accounted for 63% of the buyers of credit protection in 1999 and were expected to account for just over half of the market in 2002. Increasingly, insurance companies were expected to become buyers of protection, with a share of 11% predicted for 2002.
- 3.36 It is difficult to be absolutely confident about the overall volumes of transactions involving insurance companies. The BBA and Risk surveys suggest they have a share of around 20-25% of the credit derivatives markets. Based on their experience, market participants felt that this figure was realistic. This would equate to around \$300-400 billion of notional outstandings. Moreover, the term is used loosely – the actual risk taker may in some circumstances be the banking or investment subsidiary of an insurance group. This potentially makes a difference to the categorisation (and regulatory treatment) of the deals.

**Table 3: Sellers of credit protection**

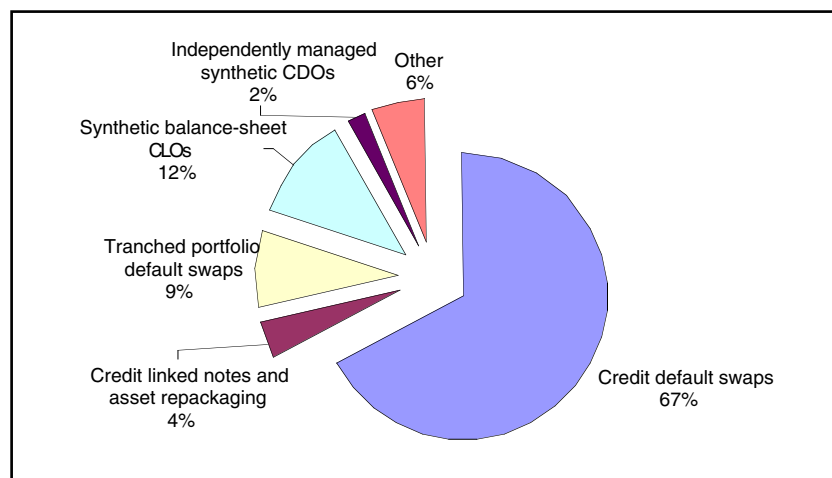
What type of institutions (will) use credit derivatives in order to sell credit protection?	1997/1998 Survey		1999/2000 Survey	
	End of 1997	2000 estimate	End of 1999 act	2002 est
Banks	54%	43%	47%	38%
Insurance Companies	10%	17%	23%	26%
Securities Houses	22%	19%	16%	16%
Hedge Funds	4%	5%	5%	5%
Pension funds	2%	5%	3%	5%
Corporates	3%	3%	3%	5%
Mutual Funds	4%	6%	2%	4%
Government/export credit agencies	1%	2%	1%	1%

*Source*  
1997/1998 and 1999/2000 BBA Credit Derivatives Surveys

## Product Trends

- 3.37 The BBA 1999/00 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. Portfolio products and synthetic CDOs, in particular, gained substantial market share; they were estimated to have constituted around 18% of the market in 1999. Even so, standard credit default products (single-name credit default swaps) still made up the largest product category by far (38%).
- 3.38 According to the 2001 Risk Survey, the total notional outstanding for single name vanilla default swaps was around \$360 billion (or 45%). Synthetic securitisations represented the second largest proportion of the total market in terms of notional outstanding (26% or around \$210 billion).
- 3.39 Both surveys support the increase of portfolio transactions. On the other hand, the recently published 2002 Risk Survey indicated a significant increase in the share of single-name credit default swaps to 67% in 2001 (see Figure 5) although portfolio structures still constitute 23% of notional outstandings.

**Figure 5: Credit derivatives by product**



Source  
Risk Magazine, 'The Vanilla Explosion' by Navroz Patel, February 2002

## Applications of credit derivatives

- 3.40 The BBA survey found that there has been a dramatic shift in the use of credit derivatives and expectations of their future applications. In 1999 credit derivatives were used mostly for managing regulatory capital. However market practitioners expected that this application would decrease. The use of credit derivatives for active portfolio management was expected to grow significantly.

**Table 4: BBA survey on applications of credit derivatives**

<b>Applications for credit derivatives in order of importance</b>			
Ranking in 1999		Ranking in 2002	
1	<b>Management of regulatory capital</b>	1	Trading/Market making (+1)
2	Trading/Market making	2	Active portfolio management (+3)
3	Management of individual credit lines	3	Management of individual credit lines
4	Management of economic capital	4	Management of economic capital
5	Active portfolio management	5	<b>Management of regulatory capital (-4)</b>
6	Product Restructuring	6	Product Restructuring

*Source*  
1997/1998 and 1999/2000 BBA Credit Derivatives Surveys

- 3.41 No clear trend emerged about the underlying exposures of synthetic and cash CDOs. However, it was suggested that there had been growing interest in 2001 in deals backed by European Small and Medium Enterprise (SME) credits.

## **Roles and involvement of different market participants**

- 3.42 This section describes the roles of the main participants in the credit risk transfer markets. Participants range from banks and investment firms at the start of the transfer chain, through intermediaries such as investment banks, to various end-users, including the monolines and global reinsurers, London market companies and other UK insurance companies and funds.

### **Banks and building societies**

- 3.43 Banks, including UK banks, are involved in originating portfolio transactions (since July 2001, building societies can also engage in derivative activities for hedging purposes and may decide to become involved in the market). The size of the transactions and some of the fixed costs associated with the deals means that the market is restricted to players who can put together a sufficient book of business. The lower costs of synthetic compared to cash securitisations could make the synthetic securitisations more attractive to institutions such as building societies. Originators also need a sufficiently diversified portfolio and sufficiently robust internal scoring systems to satisfy the requirements of rating agencies and protection sellers.
- 3.44 Of the banks we saw, one was involved in an originating role, whereas another was also involved in a ‘warehousing’ role – that is, bundling exposures for the purpose of transferring them out to insurance companies or the capital markets. This intermediary role is becoming increasingly common among banks. Another bank had not been involved in synthetic CDOs to date and only traded in single-name credit derivatives for treasury purposes – where they had only one transaction with an insurance company.

### **Investment firms**

- 3.45 Investment firms mostly buy risk from one place and sell to another. They help structure transactions for originators. They are also involved in a warehousing role where they structure exposures – in physical or synthetic form – to sell to various risk buyers, including insurance companies. These structured transactions may then be hedged by packaging the relevant exposures or selling protection on individual names. Investment firms also have a limited role in originating risk.
- 3.46 Investment banks can be exposed to some of the actual credit risk, both during the warehousing period and through retaining the first loss of structured products. They suggest that while they do not seek to retain the risk, they often would, depending on clients' needs.

### **Insurance companies**

- 3.47 The following paragraphs describe the role and involvement of different types of insurance companies.
- 3.48 Initially, however, it is worth considering the evidence on UK insurers' participation in cross-sector risk transfer products. UK regulations require insurance companies to disclose a significant amount of information on their open positions in derivatives. Analysing these in the aggregate indicated that the use of derivatives is limited. More selective analysis of the statements of derivatives positions, which provide additional qualitative information on the instruments being used, was consistent with this conclusion.
- 3.49 The statutory reporting forms also give a significant amount of information on the types of business which insurance companies underwrite. The relevant generic accounting class, class 8, covers insurance activities relating to 'miscellaneous financial loss'; it can be further sub-divided into 'risk classes' which are not standard. It was difficult to identify insurance companies that have significant activities in credit risk transfer activities from these risk classes (see further analysis in Annex C).
- 3.50 Likewise, the breakdown of insurance companies' investments in the current reporting forms does not permit the identification of firms significantly involved in structured credit investments.

### **Monoline insurers**

- 3.51 Monolines are the main players in the credit risk transfer market as net credit risk takers. Monoline insurers began operating in the US in the 1970s, in the municipal bonds market. Their activities have since expanded to include consumer loans, project finance, infrastructure deals and others. Banks are the main competitors of monolines in some of these activities. The monolines rely on their high ratings and a good settlement record; a bond wrap from a

monoline is seen as an unconditional guarantee, and the contracts explicitly waive traditional insurance disclosure requirements. The credit enhancement provided enables certain categories of investors, who would otherwise be constrained by investment guidelines on minimum ratings, to access the market.

- 3.52 Monolines will usually be involved in the senior or super senior tranches of transactions. In effect, they are currently taking AAA risk from banks, as well as providing credit enhancement to A or A- risk in more traditional business, such as project finance. New entrants have emerged in the monoline business. It was suggested that the risk appetite of these new entrants might be more aggressive than that of the traditional monolines.
- 3.53 As with other insurers, monolines cannot write credit default swaps directly through insurance subsidiaries in the UK. But they may become involved through separate investment subsidiaries or overseas operations authorised to write such business.

#### Global insurers and re-insurers

- 3.54 According to the market participants we spoke to, global reinsurers appear to be the other major credit risk takers by notional amount. They are also said to have developed an increasing appetite for lower-rated tranches of structured credits (mostly the mezzanine tranches), having started in the senior tranches. Some also have trading desks dealing in single-name default swaps. Participants suggested that the Bermudian reinsurers have adopted a similar strategy, as have some global composite insurers.
- 3.55 So a broad generalisation would be that credit risk has been transferred from banks to internationally active insurers and reinsurers and monolines. It should be noted that the actual transfer of risk from banks to these players is limited as they operate in the senior tranches and originators often retain the first loss piece. So the transfer of actual risk is more limited than may be inferred from the notional amounts.

#### London market companies

- 3.56 Some smaller London market companies<sup>8</sup> have underwritten the risk on tranches of portfolio credit derivatives; in particular the smaller size tranches, usually the equity or mezzanine tranches. The number of such companies appears to be limited, but includes subsidiaries of non-UK companies. It was suggested that there are around 12 active market participants in the mezzanine layers of these deals in London.

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<sup>8</sup> The London market often refers to companies with a presence in London that are involved in international insurance and reinsurance (there is no generally accepted definition of this market).

3.57 These market players usually write credit insurance policies through a transformer and may reinsure the exposures of other insurers. The capacity of some of these niche players is limited, so individual deals may represent a significant risk in relation to their overall capitalisation. This arguably gives such firms greater incentives to perform due diligence and monitor the transactions.

#### UK insurance companies

3.58 Few of the banking or securities participants mentioned the involvement of other types of firms (property and casualty, life and composite insurers) in the UK. However, some Continental insurers appear to have shown far more appetite for this type of risk; we were repeatedly told of the involvement of German life insurers as investors in funded credit deals, for example credit-linked notes or CDOs. This may reflect the fact that the UK industry has traditionally relied less on government bonds than its European counterparts. So, the demand for structured corporate credits has been less pronounced than in other countries.

3.59 There are exceptions to the statement that UK insurance companies are not active in these markets. For example, one UK insurer had underwritten such activities on a one-off basis, but they have now been discontinued. Another insurance company told us of their interest in CDOs and credit derivatives, which they see as a diversification opportunity for their life funds and a good way to manage their treasury function. Insurers are also looking to manage CDOs, leveraging off their abilities as major institutional investors to source risk, and to sell it on to small institutional investors, in particular in Europe where the demand for these products is high.

#### **Funds, including hedge funds**

3.60 Many participants commented on the growing involvement of hedge funds in the synthetic securitisation market.<sup>9</sup> Hedge funds may work alongside monoline insurers by taking the first loss in some deals. Convertible bond buyers (mainly hedge funds) were also said to be involved in this market. They use credit derivatives to strip credit risk from their convertible bond holdings and so keep the exposure to the equity volatility element only.

#### **Summary and trends**

3.61 Our interviews suggested that the insurance companies currently offering credit protection appear to be limited to those specifically dedicated to writing such business (or having specialist teams) and large global reinsurers. None of the respondents thought that UK insurers were very active in this market at present.

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<sup>9</sup> This accords with other market comments, such as the article by David Rule on cross-sector risk transfers in the December 2001 issue of the Bank of England's Financial Stability Review.

- 3.62 Among the mainstream insurance market participants we met, there had been a move away (or temporary retreat) from this type of business, because of market conditions. Looking to the future, there was some diversity of views. One participant thought that, “in a year’s time, the question will be, who is not doing it?” At least one insurance company was now becoming involved in these activities for investment purposes, and this may tie in with some of the more bullish views on the future involvement of insurance companies. There appears to be more interest from life insurers who take these exposures as part of their investment strategy, than from general insurers who take these exposures as part of their underwriting activities. Continental life insurers, in particular German companies, were said to be the most active investors.
- 3.63 Others felt that the appetite of insurers for this type of risk had decreased and they would approach the market with care. Insurance companies’ involvement in new markets and products depends on the state of that market, and of the others in which they operate. Credit derivatives are currently the subject of significant analysis and interest, including by regulators, and the lessons of ‘burnt fingers’ are still fresh in peoples’ minds.<sup>10</sup> The aftermath of the terrorist attacks in the US, and bankruptcies of some high-profile corporations, has focussed attention on the possibility of credit risks crystallising. So, the current level of involvement of insurance companies in these markets may not be an indicator of future involvement.

### **Drivers of the transactions**

- 3.64 The motivations underlying credit risk transfers vary depending on the counterparty that drives the deal – the originator, the investor or the intermediary. This section examines the drivers of the transactions in each case.

#### **Originator-driven deals**

- 3.65 There is a split of opinion between the various market participants on the drivers of credit risk transfers for originating banks. Some think that regulatory arbitrage is the main driver – the banks want to free up regulatory capital. Evidence of such deals abound, and originators themselves grudgingly admit to it. In contrast, some think that economic capital models and balance-sheet management (to bring exposures down to self-imposed or regulatory limits) are increasingly important.

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<sup>10</sup> The Wall Street Journal (31/7/01), for example, reported high-profile losses on structured products by a variety of firms, including American Express, American General, Lincoln National (Philadelphia-based insurer), Torchmark (Birmingham-based insurer, US). A new accounting rule, forcing insurers to write down interests in securitisations which have become impaired or have deteriorated, was said to be partly responsible for the crystallisation of these losses.

- 3.66 A practitioner suggested that banking-led financial conglomerates had looked at the feasibility of transferring exposures from their banking to their insurance arms; but this had not happened yet, as they were concerned about the reaction of regulators. This project did not uncover evidence of cross-sector intra-group arbitrage among the firms we met. However, this conclusion should be treated with caution due to our limited sample.
- 3.67 Both banks and insurance companies have complained about the favourable regulatory treatment of the other sector. Insurance companies complained that they are treated as 100 per cent weighted counterparties to banks, compared to 20 per cent for other banks and investment firms (see Annex D). Banks complained about the lower capital requirements for insurance companies. There appear to be differences in the way different parties price credit risk that may vary over time. What is clear is that regulatory capital constraints play a role in banks' involvement in credit risk transfers – whatever the actual destination of the transfers. Annexes C to E explore the differences between the different regimes in more detail.

#### **Investor-driven deals**

- 3.68 Market participants felt that investors were increasingly important in driving the deals. One estimated that, while originator-led deals had previously made up 80 per cent of the market, investor-driven deals now constituted perhaps two-thirds.
- 3.69 Participants had mixed views about the drivers for insurance companies; this may reflect the differences between insurers involved as part of their investment or their underwriting activities. Portfolio diversification and an appetite for high-yield assets were seen as the motivation for exposures taken as part of the investment activities of insurance companies.
- 3.70 Companies involved in underwriting activities were said to be motivated by new premiums and business diversification – in particular at times of unfavourable insurance rates. The fact that insurance and credit spreads do not move exactly together provides an incentive for insurance companies to underwrite the risks that are most profitable at a particular point in time. These companies provide the capacity for some deals, potentially at a lower cost to originators.
- 3.71 Monoline insurers do not fall into these categories easily. Unlike other insurance companies, credit risk is the core business of monolines. So their involvement in synthetic securitisations is simply a new method of acquiring credit risk. While they are not drivers of recent credit risk transfers, they make many deals possible by taking on the large notional amounts of risk in the senior tranches.

## **Intermediary-driven deals**

- 3.72 Investment banks are the engineers of many of the recent structured finance transactions. Their main strength has been the ability to bring together market participants with matching needs and take advantage of price differentials. They have done this, for example, by selling protection on individual names at a higher premium than the premium they pay to buy protection on the portfolio. They appear to market these structures aggressively. Banks, including UK banks, are increasingly competing with investment banks in this role.

## **Perceived risks in credit risk transfer markets**

- 3.73 This section examines some of the perceived risks in credit risk transfer structures. In particular, market participants were keenly aware of the significance of documentation and legal issues in credit derivatives. Market participants saw little ‘naïve capacity’ (see paragraphs 3.88 to 3.93) among insurance participants now and thought that the most active insurance participants undertake extensive due diligence. However, the degree of overall group controls – including to identify concentrations of risk in different activities – appeared to vary. Banks have tightened their counterparty risk management following recent disputes with the insurance industry, but they appear fairly comfortable in their dealings with insurance counterparties. A central issue appears to be different attitudes between banks and insurers, in particular, the lack of a common understanding of the terms and conditions of the transactions.

## **Legal and documentation issues**

### Documentation

- 3.74 Banks and investment firms use ISDA documentation as a standard and were generally complimentary about the improvements made to the various definitions. The main issues mentioned were:
- the definition of the credit event (crystallised in the demerger of National Power<sup>11</sup>);
  - proper identification of the reference entity against which protection is sold (illustrated in the default of Armstrong, where traders referred incorrectly to the reference entity); and
  - proper definition of the deliverable.

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11 A description can be found in an article by David Rule on credit derivatives in the June 2001 issue of the Bank of England's Financial Stability Review.

The default of Railtrack prompted some controversy about the definition of ‘deliverable’, and ISDA had to act promptly by issuing a memorandum to members on the issue,<sup>12</sup> supported by an opinion of Robin Potts Q.C. (see Box 1). Recent events suggest that the market is resilient and there are concerted efforts by the main players to ensure that confidence in the products remains high.

### **Box 1: Credit default event – Railtrack**

In the Railtrack credit default event, protection buyers were seeking to deliver the cheapest bonds available in the market. A question arose about whether exchangeable or convertible bonds were contingent and as such available for delivery. A memorandum to ISDA members stated that bonds that are convertible at the option of the bondholder, or trustee on behalf of the bondholder, should be deliverable under standard credit derivative contracts. This was supported by a legal opinion from Robin Potts QC, which stated that an English court is likely to conclude that the Railtrack plc exchangeable bonds are not contingent and so constitute a deliverable obligation. ISDA has since published its ‘Supplement Relating to Convertible, Exchangeable or Accreting Obligations’ which deals more extensively with the issues.

- 3.75 Complexity is widely acknowledged as a prominent issue in the credit derivatives market. This has recently prompted JP Morgan and Morgan Stanley, two of the largest players, to standardise most items in their bilateral credit swap master agreements in an effort to boost market liquidity.<sup>13</sup> It appears that these firms are looking for absolute clarity between them to prevent costs spiralling out of control. The initiative is intended to reduce basis risk,<sup>14</sup> operational risk and cost levels. Traditional ISDA documentation has been reduced to about a page, with the typical 30 negotiable items having been reduced to the eight most important.
- 3.76 Most firms we spoke to, including insurers, get internal and external legal opinions on the more bespoke transactions. They also follow ISDA discussions closely. Many thought that they learnt more about settlement procedures and the internal management of these with each default.
- 3.77 Market participants say that they adopt a meticulous approach to minimise the risk of the recharacterisation of transactions as insurance, and in particular to ensure compatibility under English law. They noted that, during negotiations, insurance companies focused a great deal more than capital markets players on the verification of the loss. Insurance companies ask to fill out the information on a claim form, but we were told that the information is identical to the ISDA documentation.

12 ISDA press release ‘*ISDA publishes convertible bond guidance*’, October 18 2001 and ‘*ISDA publishes credit derivatives convertibles supplement*’, November 9 2001.

13 Financial Times, 23 November 2001.

14 Basis risk refers to the risk that the credit event is not fully captured in the protection; basis risk can also arise because there is a mismatch between the reference asset and the asset that the protection buyer is exposed to.

## Transformation

- 3.78 Several of the participants had direct experience of deals involving a transformer vehicle. One market participant argued that the structure had been tested in a recent failure. They also felt that documentation had become fairly standard in transformer vehicles. On the other hand, at least one bank said that they would only use standard ISDA documentation and would not become involved in transferring the risk through transformers. This does not preclude such a firm from undertaking a transaction, for example with a counterparty, which may then back the exposure through a transformer. However, the bank would not need to get involved in that side of the deal or necessarily be aware of the back-to-back transaction.
- 3.79 Some felt that there was still significant risk in these structures. One insurer had done a deal through a Protected Cell Company (PCC) but was not wholly comfortable with the structure from a regulatory perspective; they argued that they would prefer to write credit derivatives directly. Others viewed transformers as a complication. However, they had reached a reasonable degree of comfort with the structures they used.
- 3.80 One participant said that they preferred to use an SPV. They consider several factors to select a jurisdiction for an SPV: tax, the ease of setting up an SPV in that jurisdiction and investors' preference (for example for an EU domicile). If the end user demanded another jurisdiction they would undertake suitable due diligence and would only use a transformer if this were the only structure acceptable to the end-user. Their preferred location for transformers is Bermuda, which is popular with insurers. Demand for transformers was said to have decreased because insurance companies are setting up their own vehicles.

## Settlement

- 3.81 Insurance companies give financial guarantees against the risk of losses on particular financial instruments (sometimes referred to as bond or credit wraps). This is the core activity of so-called monoline insurers (see 3.51). However, the market is increasingly seeing multiline insurers involved in more esoteric activities (for example, film financing).
- 3.82 The guarantees underwritten by monoline insurers are normally drafted in a way that, following a claim, ensures 'pay first and ask questions later'. These contracts are insurance contracts and require the waiver of certain key provisions of insurance contracts to have the effect of guarantees. Some participants note the danger in, for example, contracts waiving duties of disclosure, remedies for misrepresentation, rights of subrogation, or duties to mitigate loss because of the moral hazard implications. There is a risk that the originator of the debt, or the manager of the debt, will not be as rigorous in

their origination and management procedures. A similar issue arose in the market for mortgage indemnity cover in the late 1980s.

- 3.83 Concerns around ‘guarantees’ issued by multiline insurers were brought to prominence by the Hollywood Film Financing case (see Box 2 below). Practitioners had mixed feelings about this case. Overall, it had acted as a ‘wake-up call’. Several participants had asked their lawyers to review their documentation as a result, although they pointed out that the case itself had been no legal breakthrough as it focused on the construction of drafting. It was also suggested that the case had probably worked to the benefit of the monolines, by highlighting the risks of dealing with non-monoline insurers who may not view the guarantees as unconditional. However, some insurers emphasised that it was right that both types of contract should be available. They thought that it is up to the parties concerned to ensure that they are confident about the nature of the contract, and to pay an appropriate price.
- 3.84 The Hollywood films cases have indicated that the two sides do not necessarily have the same understanding of the contracts that they have entered into. So there is a risk that it may be wrong to rely on insurance wraps without extensive due diligence. To reduce uncertainty, Fitch<sup>15</sup> suggested that users should try to ensure that:
- (i) the contract is an irrevocable and unconditional obligation to pay the claim;
  - (ii) the contract has an uncomplicated claims mechanism that supports the unconditional obligation to pay; and
  - (iii) the contract has a clear waiver of all the defences to payment.

#### **Box 2: Hollywood funding case<sup>16</sup>**

In the Hollywood film cases, several multi-line insurers provided insurance to an SPV that issued bonds backed by the proceeds of film productions. The Hollywood studios failed to make all the scheduled films, leaving a shortfall to meet their obligations on the issued bonds. When called upon to meet the shortfall, some of the insurers disputed the claims. The insurers alleged non-disclosure, misrepresentation and breach of warranty. The insureds then tried to rely on the waiver clauses in the contracts, but in two cases found that the courts did not support their views.

In one case (HIH v Chase Manhattan, July 2001<sup>17</sup>), the Court of Appeal held that the waiver clause was:

- effective for non-disclosure (by both the insured and its broker), and innocent and negligent misrepresentation; but

15 Fitch, Special Report, ‘Use of insurance policies as credit enhancement in structured finance’, 18 June 2001.

16 See AIG Press Statement ‘AIG issues statement regarding English Court of Appeal decision’ and their paper ‘The Use of Insurance in Film Finance Securitisations’, 23rd May 2001; and ‘Financial Guarantee, Cultures Clash’ in the August 2001 edition of Reinsurance, Richard Spiller, DJ Freeman.

17 HIH Casualty and General Insurance Ltd and others -v- Chase Manhattan Bank and others Court of Appeal (Civil Division), [2001] EWCA Civ 1250, [2001] 2 Lloyd’s Rep 483 31 July 2001.

- not effective for fraudulent misrepresentation by the insured broker (permission to appeal to the House of Lords was given).

In another of the cases (HIH v New Hampshire, May 2001<sup>18</sup>), HIH had paid the claim and its reinsurer, New Hampshire, a subsidiary of AIG, refused to indemnify it against that payment. The Court of Appeal held that the waiver clause was effective for non-disclosure and misrepresentation, but did not cover the warranty for the number of films.

The most public of these disputes has been about a refusal to pay by Lexington Insurance Company, a subsidiary of AIG. Lexington insured Hollywood funding No. 5., using a policy similar to the HIH policy. This led to a disagreement between AIG and Standard & Poor's (who rated the transaction), and AIG and CSFB (the arranger and lead manager). Some commentators have suggested that the dispute arose because Standard & Poor's and CSFB expected the insurers to treat the contracts as financial guarantees and not standard contracts of insurance.

- 3.85 More recently a dispute has arisen about surety bonds. Surety bond issuers guarantee that they will perform an obligation in place of the counterparty, should that counterparty fail. These contracts have come to prominence recently as JP Morgan is embroiled in legal battles over Enron contracts, for which insurance companies issued surety bonds. JP Morgan bought crude oil and gas on a forward basis from Enron and bought a surety bond from insurance companies for around \$1 billion. Following Enron's demise, JP Morgan claimed on the insurance (Financial Times, 22 January 2001). The guarantors have balked at the claim and contend that the forward deals with Enron were, in fact, loans in disguise and they had not guaranteed a loan. The legal wrangles continue.
- 3.86 These issues prompted Standard & Poor's to market a Financial Enhancement Rating (FER) for companies involved in credit enhancement transactions. The FER is designed as a quality stamp and aims to increase clarity, in particular, about the companies' ability and willingness to behave in a 'capital markets' way.<sup>19</sup>

### **Quality of credit risk management and the use of credit ratings in insurance companies**

- 3.87 This section considers the rigour with which insurance companies approach the process of acquiring credit risk. It looks at:
- the extent to which insurers rely on rating agencies' assessments of risks compared to their own models, judgements or both;
  - the propensity of insurers to reject deals;
  - the amount of 'naïve capital' in the market; and

18 HIH Casualty and General Insurance Ltd -v- New Hampshire Insurance Co and others Court of Appeal (Civil Division), [2001] EWCA Civ 735, [2001] 2 Lloyd's Rep 161 21 May 2001

19 'Standard & Poor's introduces criteria for Insurer Financial Enhancement Ratings', Standard & Poor's, 18 June 2000.

- the extent to which insurers identify correlated risks in different parts of their business.
- 3.88 Market participants suggested that insurance companies do not rely unduly on rating agencies, but rather that they undertake their own detailed due diligence. The market participants acknowledged that estimating the correlation across the names in portfolio transactions was a significant source of uncertainty. One insurer explained that they had developed their own risk model and done research on a portfolio of 500 names. They found the process painful, long and expensive, and thought that they may rely more in future on a rating agency model, which they find reliable and transparent. Also, the earlier process had shown that they came out with a similar assessment to the ratings agencies.
- 3.89 Another insurer said that they run their own models to assess the price of the risks and noted that portfolio transactions enable them to arbitrage the ratings of the underlying obligations. On the other hand, they said that they were generally more conservative than the ratings agencies.
- 3.90 Some participants suggested that rating agencies can underestimate the loss severity and that some investors would do well to be more inquisitive, and question the adequacy of historical datasets at different points of the cycle. Participants generally were suspicious of ‘black-box’ models. They would impose their own conditions and use their own risk management models to assess the transaction relative to market conditions and other instruments. Likewise one rating agency emphasised that they do not rely exclusively on their models but apply further judgement.
- 3.91 One market participant thought that European insurers do not rely solely on credit ratings because of the lack of availability of ratings in Europe. This has also led European insurers to seek more tailor-made structures than their US counterparts.
- 3.92 Banks, intermediaries and rating agencies said that the sophistication of insurers varied. However, they were generally complimentary about the level of sophistication of the most active players. They suggested that these active players took a rigorous attitude towards selecting credits in portfolio deals, and undertook an assessment on a name-by-name basis. It was suggested that insurers turn down a lot of names in portfolio deals (for example 20-40 out of 100). It was also suggested that insurance companies would reject around 90 per cent of the deals that they see. In most cases they would reject deals immediately because they do not meet their criteria, but they could undertake due diligence and reject a deal after three months of work. Two major insurers noted that there was now a high demand for credit analysts in the insurance sector.

- 3.93 Several participants suggested that there had been some ‘naïve capacity’ (that is firms selling protection without adequate risk assessment procedures) in the insurance market in 1999/00, mostly among second and third tier players. These were companies dabbling in the market, as the returns looked more attractive than traditional insurance business. However, participants thought that new entrants would approach the market very carefully, and not in a ‘naïve’ way. There was mention of a recent market joiner who had spent six months researching the products and building expertise before launch. Nobody we talked to thought that there was much, if any, ‘naïve capital’ in the marketplace at the moment. Yet, the suggestion of past naïve capacity raises the question of how the contracts entered into in the past are now being monitored and managed, as most are likely to be still in force.
- 3.94 However, it was not always clear that insurance companies adopt an holistic approach to risk. The smaller firms said that they would look at concentrations or natural hedges, or both, across their underwriting and investment activities.
- 3.95 Among larger players, risk management and approval procedures appeared to be less centrally managed. One insurer conceded that their systems would not automatically pick up exposures appearing in both the underwriting and investment arms of the group – but significant exposures to individual counterparties might be picked up manually. And it was not clear that senior management was well informed about the activities of group entities in new products. In another insurance group, there did not appear to be a group-wide strategy for CDOs or credit derivatives and no evidence of group-wide credit risk aggregation.
- 3.96 We also found that there is a stark separation between positions taken in the life funds and other parts of insurance groups although, on one occasion, we found that the UK entities used the expertise of specialist units to help in decision-making, pricing and valuation. The level of information reported at board level was not clear in the larger groups, although this should be viewed in the context of the materiality of the activities concerned.

### **Pricing arbitrage**

- 3.97 One market participant remarked on the existence of ‘dumb’ pricing in Bermuda and Japan, but argued that this did not imply that the companies misunderstood the risk; rather, it was reflecting underpricing of the risk. They thought that it might reflect the state of the insurance cycle (at least before 11 September) – with insurance companies underpricing the risk to secure new premiums.
- 3.98 There is no generally accepted credit risk model in the market at present, even among the banks. Insurance companies tend to use actuarial-based models for

pricing the risk but it did not appear that modelling approaches alone account for differences in the pricing of the risk. Some market participants said that there are arbitrage opportunities arising from the rating of certain tranches by rating agencies. This may be because of different assumptions (for example default and joint correlation assumptions) as well as modelling approaches, although it was not clear that there was a single difference that may account for potential arbitrage opportunities.

- 3.99 Accounting differences could also affect the pricing of credit derivatives in the different markets. In particular, it may be possible for insurance companies involved in the senior tranches of transactions to ignore a short-term deterioration of the overall transaction – for example losses on the first loss tranche – as long as the senior tranche has not yet been affected. In contrast, in a mark-to-market world, deterioration would affect the value of the senior tranche immediately.
- 3.100 It is possible for insurance companies to take a longer-term view than banks looking at their traded positions. This appears to be a subject of debate during negotiations; insurance companies were said not to like clauses requiring closure on a mark-to-market basis. These disagreements reflect the different time horizons facing the banking and insurance sectors. Banks are concerned about liquidity, whereas this tends to be less relevant to insurance companies, which consider the longer term.

### **Quality of bank counterparty risk management**

- 3.101 Banks seemed cautious in their approach to insurance counterparties, partly because of recent events – for example the Hollywood funding case. One bank did not, as a general rule, deal with insurance counterparties. However, they recognised that they may be neglecting an important section of the financial industry; and dealings with insurers were a subject of internal debate.
- 3.102 Market players said that they would undertake due diligence on an insurance company as with any other counterparty. In particular they would want to find out the quality of its controls – for example to find out that the board of the insurance company approves the deal, and its ability and willingness to pay. There is clearly some nervousness in the market about both aspects. Banks and investment banks may also try to keep insurance companies informed of any deterioration in the underlying credits, to alert them that they may need to pay out.
- 3.103 One niche insurer also felt that bankers had too much power in the market; this was reflected in the banks' requests that insurance companies should put up collateral on a mark-to-market basis. The insurer resisted these requests as they do not like the resulting short-term exposures. It was noted that the perceived benefit of collateral had been undermined in a recent failure. In that

case the collateral could not be drawn upon when called. The recent disputes on Enron contracts (see paragraph 3.85) are likely to increase banks' reticence towards insurance counterparties.

- 3.104 However, banking participants overall believed that the main insurance participants in the credit risk transfers market were sophisticated.

## **Regulatory treatment**

- 3.105 This section highlights some of the regulatory issues that arise in credit risk transfers. There are three issues:
- Are insurance companies effectively circumventing the legal perimeter by underwriting credit derivative protection?
  - Does the regulatory capital treatment of credit according to the different sectoral regimes drive these transactions?
  - To what extent is the current regime appropriate for these new product structures?
- 3.106 The main objective of this section is to summarise the relevant regulations. It starts by setting out the scope of activities which insurance companies can undertake. It then moves to the treatment of derivatives and credit insurance in insurance companies, which is then contrasted with the treatment of credit risk in banks. This section also illustrates the differences between the treatment of credit derivatives in the banking and trading book of banks.

## **Legal boundaries**

- 3.107 The legal boundary of insurance business is not always clear. In recent years, firms (both banks and insurance companies) have been engaging in activities that push this boundary. This is particularly true in the field of credit derivatives. One legal opinion (obtained<sup>20</sup> by ISDA in 1997) concluded that credit derivatives are not insurance business. However, banks and insurance companies have recently started setting up structures to facilitate the transfer of credit risk. These structures effectively provide credit derivative-like protection by underwriting credit insurance on the same terms as a credit default swap. Also, changes to the regulatory framework under the Financial Services and Markets Act 2000 have altered some of the issues – in particular, the consequences of a breach. Some of these issues, and the questions that they raise for us, are described in Annex B.

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20 From Robin Potts QC.

### **Regulatory treatment of credit risk in insurance**

- 3.108 Annex C describes the regulatory treatment of derivatives as assets under insurance rules. The current regime reflects the principle that derivative activities should be allowed if they help the company achieve particular investment objectives or help hedge particular exposures. On the other hand, it discourages the use of derivatives as a stand-alone activity. The principal effect of the regime is that insurance companies should not write credit derivatives, although they may buy protection using a credit derivative from an approved counterparty to cover admissible assets.
- 3.109 The annex also describes the regulatory treatment of credit-linked assets and credit insurance. The asset portfolio of insurance companies is mainly subject to admissibility and diversification rules. Regulatory reporting does not provide a breakdown that permits the identification of asset-backed securities such as CDOs.
- 3.110 Credit insurance solvency requirements are linked to premiums or claims – as described in Annex C. The authorisation class drives the exact treatment, but some credit risk transfer transactions do not fall easily in one class. Also, despite extensive disclosure requirements for insurance companies, it is difficult to find out the involvement of firms in credit risk transfers from the regulatory reports available, as they become combined with other forms of financial loss insurance.

### **Treatment of credit derivatives in banks**

- 3.111 Annex D describes the regulatory relief that can be granted where a bank engages in a credit derivative transaction. It is based on the regulations in the UK (current international requirements do not cover credit derivatives, so national requirements are not all the same). The examples show that the relief that will be granted depends on the nature of the counterparty. It also shows that direct transactions with insurance companies will not result in any regulatory capital relief for the bank (since both the original credit and the insurance company carry the same risk weight under current rules).
- 3.112 Some of the insurance firms we met felt that the current treatment is not proportionate as it attributes a higher risk weight to insurance counterparties than lower-rated investment firm or banking counterparties – and it effectively attaches the same risk weight to insurance companies as unregulated counterparties.
- 3.113 On the other hand, Annex D shows that banks can get capital relief if they deal with another bank or investment firm which underwrites the credit derivative as part of its trading activities. It is then possible for this exposure to be hedged to an offshore or unregulated reinsurer and for the transaction to result in a decrease in the level of regulatory capital required on the

underlying assets. A simplified example illustrates the chain that could lead to such an outcome.

- 3.114 Some of the credit risk transfers observed between banks and insurance companies involve tranching portfolio credit derivatives in the trading book. The regulatory treatment of traded portfolio credit derivatives also varies across different countries. We currently give individual guidance to firms that have approached us about these transactions. We have done significant work to resolve this issue, but we found it difficult to design a solution that meets the framework of current EU directives – which do not capture these products. The current review of the Basel Accord does not tackle this issue, as the focus is on the treatment of non-traded transactions. While we will continue to work towards a domestic solution, we believe that this is an issue that needs to be addressed by the international regulatory community.

### **Comparison of the treatment of credit risk under banking and insurance regulations**

- 3.115 Annex E shows a highly stylised worked example to illustrate the way the present and future Basel Accords respond to probability of defaults, as predicted by external ratings. An attempt has been made to compare this to the way EU insurance solvency regulations would capture the requirements associated with underwriting a similarly-rated exposure. Since the insurance requirements are based on the firm's assessment of the risk, it is not possible to make sweeping statements about the relative prudence of the regimes. However, a generalisation might be that the banking requirements against specific credits are higher than the corresponding insurance requirements, except for the most risky exposures.

### **Conclusions**

- 3.116 This section has illustrated that differences between the regimes, including between the banking and trading book treatment of credit risk, will inevitably lead to differences in the associated capital requirements. In particular, it has highlighted the following characteristics of the different regimes:
- The boundary between insurance and credit derivatives is becoming unclear as insurance companies effectively underwrite credit insurance on the same terms as a credit default swap.
  - The analysis of regulatory requirements for insurance companies shows that the requirements can be somewhat opaque to outsiders. The analysis also highlights potential issues involving the link between solvency requirements and the pricing of transactions, which will be of particular concern where firms misprice or underprice the risk. Finally, the analysis shows that an insurance company may set less capital against the

underlying credit risk than a bank holding the credit risk in its banking book.

- If a bank seeks protection from a bank or investment firm which, in turn, hedges the transaction, the aggregate requirements for both parties will be less than the requirement on the underlying position in the bank's books. This is the case even if the ultimate hedge is provided by an unregulated counterparty.
- These differential requirements, coupled with the lack of sensitivity of the current Basel Accord, may lead to regulatory arbitrage incentives – in particular, for banks to transfer highly-rated risk through structured transactions. The review of the Basel Accord should reduce these incentives.

3.117 The differences between the regulatory regimes may lead to different pricing constraints in the banking and insurance sectors. And, certain transactions may lead to a significant decrease in the overall level of capital required of the various parties, before and after protection is sought. This could also have an impact on the pricing of the transactions.

3.118 However, based on the discussions with market participants, it is not clear that regulatory arbitrage is the principal driver for the credit risk transfers between banks and insurance companies.

## **Risk assessment of credit risk transfers**

3.119 This section summarises the potential risks to our objectives arising from these activities.

### **Risks to the objectives**

3.120 Annex F summarises the risks inherent in credit risk transfers, and maps these against the risks to our objectives and the assessment of these risks following our meetings with firms. The risks identified relate principally to two of our objectives, market confidence and consumer protection, and include:

- lack of senior management oversight in insurance companies;
- inadequate credit risk management systems in insurance companies;
- inadequate risk management in banks;
- lack of effective risk transfer;
- inadequate operational risk controls (legal/documentation risk);
- liquidity risk;

- lack of transparency;
- absence of regulation in the reinsurance market;
- inadequacy of reporting to the regulator;
- regulatory arbitrage across ‘industries’;
- regulatory arbitrage within groups, resulting in a decrease in regulatory capital of the group; and
- credit deterioration in the economy.

### **Risk assessment**

- 3.121 The methodology used in this project – interviews with selected market participants and desk-based research – means that we collected mostly anecdotal evidence. Even so, it is possible to infer some conclusions about the potential impact of the crystallisation of risks in these markets on our objectives.
- 3.122 The number of UK insurance firms involved in credit risk transfers is limited at present. It is a relatively new market with the potential to grow, but it appears to be concentrated in the hands of a few players, including investment banks, monoline insurers and a few global insurance players. The involvement of life insurers in funded transactions is also likely to grow.
- 3.123 The involvement of insurance companies in credit derivatives is believed to stand at around \$300-400 billion (see paragraph 3.36). We have indicated above that the monolines and global reinsurers dominate the market. The table below shows the capital of the monolines and top reinsurers at end-2000.

**Table 5: Capital of monolines and top reinsurers at end-2000**

Monolines – qualified statutory capital at 31/12/00*	\$10.8bn
Top 20 reinsurers – total capital and surplus for 2000**	\$134.3bn

\* Fitch ‘Who wants to be a bond insurer’ Special Report 3/5/01 – figures comprise all monolines primaries including ACA, Ambac, Assset Guaranty, CGA, FGIC, Financial Security Assurance, MBIA, XLCA (qualified statutory capital is made up of policyholders surplus and contingency reserves)

\*\* Reinsurance, April 2001.

- 3.124 The relatively small number of the main insurance players in this market (in particular the monolines and reinsurers) suggests some concentration of the risk. However, since monoline insurers and reinsurers tend to be involved in the more senior tranches of credit derivatives transactions, the risk is unlikely to crystallise except under the worst circumstances. In such circumstances, the impact of more general credit deterioration on banks is likely to be a greater concern. The concentration of risk among a small number of insurance players

may also cause concerns about the impact of difficulties at one of these firms, both in the credit risk transfer market and other markets in which they operate.

- 3.125 The current volumes of CDOs are estimated to be around \$300-\$400 billion in total, that is to say not solely cross-sector (see paragraph 3.36). In contrast, the total assets of UK life insurers stood at £1043 billion at end 2000 (around \$1554 billion); the total assets of US life insurers at end-2000 stood at around \$3140 billion. The total assets of life insurers globally may be in the region of \$10 trillion.
- 3.126 So, the holdings of UK insurance firms in these activities appear to be limited compared to their activities in other markets. The main concern, at present, appears to be related to inadequate risk management by individual firms.

# 4 Insurance risk transfers

## Scope of the project

- 4.1 The second part of this project looked at ‘insurance risk transfers’. The definition of these is not straightforward. The market understanding of ‘alternative risk transfers’ or ART transactions encompasses reinsurance products, such as new forms of finite insurance, which were not covered by the project. Reinsurance is, of course, the main risk transfer technique in the insurance industry. Although it is mentioned extensively in the report, it was not included in the scope of the project, since it does not constitute a risk transfer across sectors. The project instead concentrated on the transfer of insurance risk to the capital markets, mostly through catastrophe (cat) bonds, swaps and options, and life and non-life securitisations.
- 4.2 This project intended to gain information on weather derivatives. But the market participants, which we selected for their involvement in insurance securitisations, tended to be less active in this segment of the market. So, very few of our meetings covered weather derivatives at any length, and this paper mentions these transactions only briefly.
- 4.3 The project’s methodology and aims were the same as for the credit risk transfer section, as set out in paragraph 3.4.
- 4.4 The project team had discussions on insurance risk transfers with 17 firms, including consulting firms, rating agencies, insurers and insurance brokers, investment banks, and banks.

## Types of transactions

- 4.5 This section outlines the characteristics of the main types of insurance risk transfer. Much of this section is devoted to the cat market which has been the largest by far to date, and then goes on to describe life securitisations.

## **Traditional reinsurance**

- 4.6 A traditional reinsurance/retrocession<sup>1</sup> contract is designed to protect the insurer or reinsurer – from now on referred to as the ceding company – from unexpected or cumulative claims. The company selling the protection (the reinsurer) provides compensation for the underwriting loss in exchange for a premium. The ceding company effectively exchanges an uncertain and potentially volatile position (that is exposure to claims from its customers) for a certain and stable position (that is payment of a premium). In this mechanism, some of the underwriting risk is transferred from the ceding company to the reinsurer and the former becomes exposed to a timing risk (if the reinsurer is slow to settle claims), and a counterparty risk (if the reinsurer has insolvency or financial difficulties). No basis risk is involved as any valid claim by the ceding company that falls within the terms of the contract will be paid in full. But it is possible for the reinsurer to dispute claims; indeed, legal disputes are a significant feature of the reinsurance market.

## **Cat bonds**

- 4.7 Cat bonds enable insurers and reinsurers to transfer their exposure to a catastrophe to the capital markets. This is achieved by ceding a portion of the risk to an SPV or a PCC,<sup>2</sup> which then issues bonds to the capital markets. The sponsor (or ceding company) pays a premium commensurate with the spread on the bonds. Different cat bonds can have very different risk profiles depending on the type of trigger used to determine payment following a catastrophe.
- 4.8 Cat bonds are designed to look like a reinsurance contract to the insurer and a financial instrument to the investor. Cat bonds can be structured in different ways and the type of structure will influence how closely their performance mirrors that of a traditional reinsurance contract. These differences are highlighted in the type of trigger mechanism employed in the cat bond structure. There will also be differences depending on whether the cat security is structured as a funded or unfunded transaction – for example, bond versus option.
- 4.9 The main types of trigger are one, or a combination, of:
- (i) Indemnity – Linked to the actual losses incurred by the ceding (re)insurer. Usually threshold based, that is the ceding party receives \$x if losses incurred exceed \$y, possibly with multiple thresholds in the same contract.

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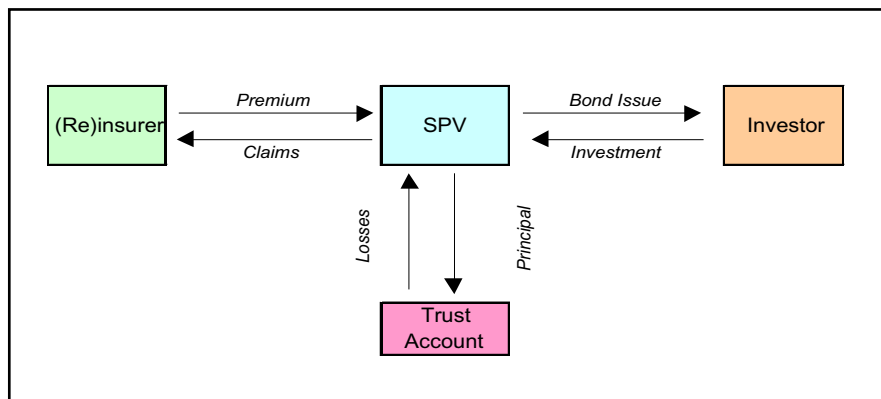
1 Reinsurance of reinsurance.

2 See Annex 1.

- (ii) Industry Loss Trigger – Payout is based on a well-established index of industry losses, for example Property Claims Service (PCS) Index. Multiple thresholds may be used.
- (iii) Modelled Loss Trigger – The loss function is based on the modelled loss to a notional portfolio, specified by the sponsor and intended to mirror the actual portfolio of the sponsor. The model’s inputs are the elements of the hypothetical portfolio and parameters that are easily observable (for example pressure of a hurricane). If an event occurs, a modelled loss is calculated based on these inputs and determines the loss to the bondholders.
- (iv) Parametric Index Trigger – Payouts based on observable, usually physical, parameters – for example for earthquake activity, the magnitude and depth on the Richter scale in a pre-determined location.

4.10 A typical cat bond structure is shown in Figure 6. Annex G describes the USAA issue, a structure which we were told has been typical of the cat bonds market.

**Figure 6: Simplified catastrophe bond securitisation structure**



- 4.11 Some catastrophe-linked securities do not require upfront funding. One market participant described a multi-year catastrophe call option. The objective of the deal was to give the ceding company the option to get an appropriate capacity of catastrophe coverage, at a pre-agreed price, in the period following substantial losses. This would be exactly the time when traditional retrocession cover would be likely to be expensive or possibly not available at all.
- 4.12 In return for a fee, the client got the option to purchase reinsurance at a pre-specified premium for up to two years following industry losses in excess of a pre-determined amount. If, in the post-event period, the rates available through traditional reinsurance sources are more favourable than the specified premium, the option need not be exercised.

- 4.13 The strike rate of the option was approximately 25-30 per cent above the market rate at the time of the deal but below the expected level of market post-loss reinsurance rates. The underwriter expected capital market costs to rise by only 15 per cent at such a time – it is through such a difference that they could extract a profit by issuing cat bonds to the capital markets.
- 4.14 Catastrophe-linked securities can also be structured as swaps. In 1998, Mitsui Marine engaged in a swap transaction based on a parametric trigger linked to the magnitude of an earthquake in and around Tokyo.<sup>3</sup> The amount of coverage was \$30 million, and the swap involved periodic premium payments by Mitsui. If the trigger reaches a pre-determined level, the counterparties must make a payment – agreed in advance. To reduce the counterparty risk inherent in swap transactions, counterparties may be asked to post collateral.

### **Life securitisations**

- 4.15 In a life securitisation, a life company usually transfers the rights to future profits on its book. The price paid by the investor is discounted below the embedded value of the insurance business – the embedded value of the business should reflect the net assets of the business and some measure of future profits.<sup>4</sup> The market refers to these securitisations as ‘embedded value securitisations’. In 1998, a UK life issuer, National Provident Institution, issued a life securitisation<sup>5</sup> – more details are contained in paragraph 4.27.
- 4.16 For the investor in a life securitisation, the future profit flows on the business and so the certainty of the returns on the security depend on:
- the product structure (for example a closed, paid-up book is more certain than an open, in-force or immature book);
  - the accuracy of assumptions on lapse rates;
  - the accuracy of assumptions on mortality; and
  - the accuracy of assumptions on interest rates.
- 4.17 In contrast to other asset-backed securitisations, the rating of the securities tends to be constrained by the rating of the originator. This is because policyholders might be given priority for payouts over the interests of purchasers of the notes in the event of insurer difficulties.

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3 This parametric trigger had been defined for the first time the previous year for the issuance of a cat bond by Tokyo Marine (through the Parametric Re. SPV in the Cayman Islands). *Insurance-linked securities*, Swiss Re New Markets, 1999.

4 Embedded Value Assets = net assets + present value of in force business (PVIF) discounted at a prudent rate.

5 Source: Standard & Poor’s *Insurance Securitization: Weathering the Storm*, 2000.

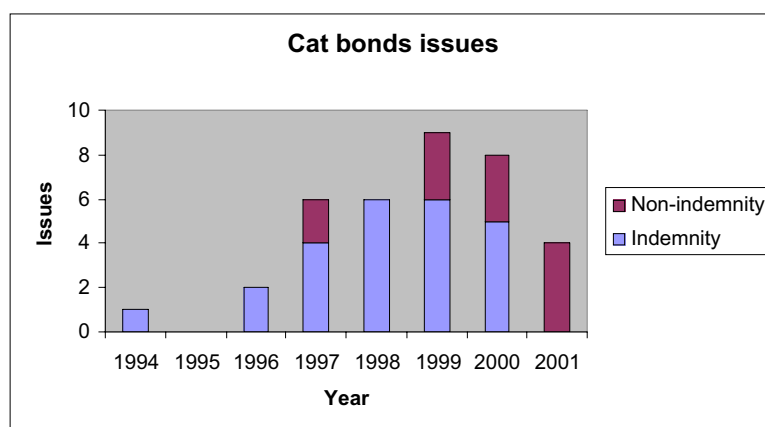
## Volumes of transactions and market trends

- 4.18 This section summarises some of the publicly available information on the volumes of insurance securitisations and extrapolates potential trends from our meetings with market participants.

### Cat bonds – existing surveys

- 4.19 Existing surveys confirm that the volumes of insurance risk transfers have been very limited, and that the main transactions have been cat bonds. Figure 7 shows the evolution in the number of cat bond issues since 1994. Although there was some activity before 1997, cat bond issuance really took off in that year. However, they stagnated in number and amount covered in 1998, picking up again in 1999 and 2000. This can be partly explained by the softening reinsurance market in 1996-8,<sup>6</sup> which led to cheaper traditional cover. As the market hardened in 1999-2000, these deals became attractive once more.

**Figure 7: Cat bond issues by type (indemnity versus non-indemnity structures)**



Source  
Compiled from Table 5

- 4.20 Our visits supported the information gathered during our desk-based research, which suggested that there have been 37 cat bond issues since 1994. A detailed list of the 37 cat bond issues is shown in Tables 6 and 7. The market is believed to stand at around \$2 billion of outstanding securities globally. Although most participants thought there was a private/bilateral market in addition to the public deals, they conceded that this was difficult to quantify – many had the impression that it was not significant.
- 4.21 There was no real consensus about market trends. Instead we listened to a range of opinions, with some speculating that the market has reached a plateau, and others suggesting that the market was still growing. The events of 11 September 2001 provide an opportunity for the market to grow ('if it

<sup>6</sup> A 21 per cent decline in property catastrophe reinsurance prices occurred during this period (Swiss Re Sigma 3/2001).

does not increase now, it never will'). However, since the gestation period for a deal is quite long, an immediate increase in deal flows should not be expected.

- 4.22 There have also been recent capital injections in Bermuda which have eased the shortage in retrocession capacity, so reducing the scope for cat bonds. Recent capital injections in Bermuda totalled \$3.4 billion for existing companies but \$6.6 billion for new companies (in addition to \$7.7 billion in Europe, \$6.4 billion in North America, and \$347m in the rest of the world).<sup>7</sup> The sudden surge in capacity has meant that rates have not hardened to the degree originally expected. It also raises questions about the extent to which these firms might need to chase business in other areas, including credit risk transfers.
- 4.23 However, one participant was aware of four issues coming to market and there were hopes that 2002 may see more issues (indeed SCOR<sup>8</sup> issued a cat bond in January 2002, a renewal of the Atlas Re deal). Another participant was also upbeat about the immediate and longer-term prospects for the market and felt that insurers and reinsurers were building knowledge because they were looking for an alternative to traditional reinsurance.
- 4.24 Many commented that cat bonds have been more akin to reinsurance than financial contracts, although the move to non-indemnity triggers (see Figure 7) is altering this general perception. Most participants expected non-indemnity structures to become predominant.

### **Other forms of insurance risk transfers**

- 4.25 Insurance companies have not become significantly involved in the weather derivatives market – although some may have done a few transactions in their investment arm. The investment banks and energy companies dominate the market, with some banks and insurers involved. While many would describe the main risk in weather derivatives as an insurance risk, it tends to be transferred directly from non-financial companies to the capital markets. It was suggested that insurance companies had made incursions into this market, but had been unsuccessful and discontinued these activities. The notional value of traded weather derivatives contracts was estimated at around \$3 billion in 2000 (there were around 200 deals in Europe over 2000/2001, compared to 4000 in the US, although some participants predict that the market will grow).<sup>9</sup>

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7 Schroder Salomon Smith Barney Insurance Report 14 January 2002, Figure 35.

8 Artemis ART Deal Directory, at [www.artemis.bm](http://www.artemis.bm)

9 Darren Toulson, "*Weather Derivatives Lecture*" at the Insurance Institute of London, March 2001

- 4.26 Many participants saw potential in life securitisations and homogeneous low-severity, high frequency insurance risk securitisations (for example motor insurance). Some life securitisations have come to market recently.
- 4.27 UK insurers have publicly said that they would look at this alternative method of transferring the risk on their life operation. Indeed, there was one life securitisation in the UK in 1998, involving an SPV (Mutual Securitisation plc) issuing £260m worth of notes linked to the emerging surplus of National Provident Institution (NPI).<sup>10</sup>
- 4.28 It is thought that conditions are now becoming more favourable to securitisation because reinsurance has become a less attractive option (the events of 11 September 2001 are pushing up costs, even in life reinsurance). Also, the move away from with-profits policies is changing the way life insurers can fund new business. It is no longer possible for life insurers to use more mature policies in with-profit funds to subsidise new business, as new business is now going into a different fund. Securitisation of their large with-profits funds could give firms a capital-efficient alternative to fund new business.
- 4.29 Considering non-life securitisations, the consensus was that there was interest in developing the thinking and structure around these. Some thought that the failure of the market to take off suggested its lack of potential – motor securitisations had first been mentioned in the 1980s. However, at least one insurer said they were interested in motor securitisations, in principle, although they thought that their current systems and data were not developed enough to make such an issue marketable. The ability of the modelling companies to develop reliable models of potential losses was viewed as a key determinant for further growth.
- 4.30 There had been speculation that there would be a demand for securitisations of risks linked to terrorist attacks. However, the suggestion came as a surprise to the firms we spoke to, who thought that there would be little demand for securities based on such unpredictable events. If an event cannot be modelled, rating agencies cannot determine a probability of default, and so cannot determine a rating. Whether an event can be modelled is therefore key to the issue of a bond. On the other hand, Insurance Day recently (23 January 2002) reported that two modelling companies were planning to focus on ‘man-made’ events.

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10 Source: see footnote 5.

**Table 6: Cat bond issues to date**

	<i>Issue/SPV</i>	<i>(Re) insurer/ Sponsor</i>	<i>Year</i>	<i>Size (\$m)</i>	<i>Risk</i>	<i>Trigger</i>	<i>Model Company†</i>	<i>Clearing agent ‡</i>
1	AIG	AIG	1996	10	Multi-line	Indemnity	/	/
2	Alpha Wind	Arrow Re	2000	90	Wind	Indemnity	RMS	GS/EWB
3	Atlas Re	SCOR	2000	200	Multi-line	Indemnity	EQECAT	GS
4	Atlas Re II	SCOR	2002	150	Multi-line	Physical	RMS	GS
5	Concentric	Oriental Land	1999	100	EQ	Physical	/	GS
6	Domestic	Kemper	1999	100	EQ	Indemnity	/	/
7	Georgetown	St Paul Re	1996	69	Multi-line	Indemnity	/	CSFB
8	Golden Eagle II	Am Re	1999	182	Multi-line	Model	RMS	AM RE/ML/SSB
9	Golden Eagle II	American Re	2001	120	Wind, EQ	Model	RMS	LB/ML
10	Halyard Re	Sorema SA	1999	17	Multi-line	Indemnity	/	ML/AON
11	Halyard Re	Sorema SA	2000	17	Multi-line	Indemnity	/	/
12	Juno Re	Gerling	1999	80	Wind	Indemnity	AIR	GS
13	KOVER	Hannover Re	1994	85	Multi-line	Indemnity	/	/
14	Mediterranean Re	AGF	2000	129	Wind, EQ	Model	EQECAT	GS
15	Mosaic Re I	F & G Re	1998	54	Multi-line	Indemnity	/	GS/EWB
16	Mosaic Re II	USF & G Re	1999	46	Multi-line	Indemnity	/	GS/EWB
17	Namazu Re	Gerling	1999	100	EQ	Model	EQECAT	GS/AON
18	NeHi	Vesta	2000	50	Wind	Indemnity	AIR	AON
19	Pacific Re	Yasuda	1998	80	Wind	Indemnity	/	AON
20	Parametric Re	Tokio F & M	1997	100	EQ	Physical	/	SRCM/GS
21	Prime Capital	Munich Re	2000	303	Wind, EQ	Physical	RMS	/
22	Residential Re I	USAA	1997	477	Wind	Indemnity	/	ML/GS/LB
23	Residential Re II	USAA	1998	450	Wind	Indemnity	/	/
24	Residential Re III	USAA	1999	200	Wind	Indemnity	/	GS/LB/ML
25	Residential Re IV	USAA	2000	200	Wind	Indemnity	AIR	GS/LB/ML
26	Seismic	Lehman Re	2000	150	EQ	Industry	RMS	LB/SRCM
27	SLF I	Reliance	1997	10	Multi-line	Indemnity	/	/
28	SLF II	Reliance	1997	10	Multi-line	Indemnity	/	/
29	SLF III	Reliance	1998	25	Multi-line	Indemnity	/	GS/EWB
30	SLF IV	Reliance	1999	10	Multi-line	Indemnity	/	/
31	SR Earthquake Fund	Swiss Re	1997	137	EQ	Industry	/	SRCM/CSFB
32	SR Wind Ltd	Swiss Re	2001	116	Wind	Model	EQECAT	SRCM/LB
33	Trinity	Centre Re	1998	84	Wind	Indemnity	/	GS/CHASE/DLJ
34	Trinity Re I	Centre Re	1998	57	Wind	Indemnity	/	GS/CHASE/DLJ
35	Trinom Ltd	Zurich Re	2001	162	Wind, EQ	Model	AIR	MSDW/AON
36	Western Capital	Swiss Re	2001	100	EQ	Industry	EQECAT	SRCM/GS
37	Winterthur Re	Winterthur Re	1997	238	Wind	Indemnity	/	CSFB
	Total			4508				

Source: Swiss Re Capital Markets, Sigma report 03/2001 – Capital market innovation in the insurance industry FITCH Report: The operation and evolution of CAT-linked bonds  
† RMS – Risk Management Solutions Limited; AIR – Applied Insurance Research; EQECAT - EQUECAT Inc  
‡ GS – Goldman Sachs ; EWB – E.W.Blanch ; CSFB – Credit Suisse First Boston ; AM RE – American Re; ML – Merrill Lynch ; SSB-Salomon Smith Barney ; LB – Lehman Brothers ; SRCM – Swiss Re Capital Markets ; CHASE – Chase Manhattan ; DLJ – Donaldson, Lufkin, Jenrette; MSDW – Morgan Stanley Dean Witter

**Table 7: Current/outstanding cat bonds**

<i>Issue/SPV</i>	<i>(Re) insurer/ Sponsor</i>	<i>Year</i>	<i>Risk</i>	<i>Size (\$m)</i>	<i>Maturity</i>	<i>Rating</i>	<i>Spread*</i>
1 Parametric Re	Tokio F & M	1997	EQ	100	2007	BB	L+430
2 Pacific Re	Yasuda	1998	Wind	80	2003	Ba3	L+370
3 Concentric	Oriental Land	1999	EQ	100	2004	BB+	L+310
4 Domestic	Kemper	1999	EQ	100	2002	BB+	L+369
5 Juno Re	Gerling	1999	Wind	80	2002	BB	L+420
6 Namazu Re	Gerling	1999	EQ	100	2005	BB	L+450
7 Atlas Re	SCOR	2000	EQ	70	2003	BBB+	L+270
			EQ	30	2003	BBB-	L+370
			Wind	100	2003	B	L+1400
8 Mediteranean Re	AGF	2000	Wind	41	2005	BBB+/Baa3	L+260
			EQ	88	2005	BB+/Ba3	L+585
9 NeHi	Vesta	2000	Wind	50	2003	BB	**L+410
10 ***Prime Capital	Munich Re	2000	Wind	159	2004	BB + Ba3	L+650
			Wind, EQ	129	2004	BB+/Ba3	L+750
11 Residential Re	USAA	2000	Wind	200	2004	BB+	L+410
12 Halyard Re	Sorema SA	2001	Multi-line	17	2002	BB-	**L+800
13 Golden Eagle II	American Re	2001	Wind, EQ	120	2002	BB+/Ba2	L+550
14 SR Wind Ltd	Swiss Re	2001	Wind	58	2005	BB+/Ba2	L+525
			Wind	58	2005	BB+	L+575
15 ***Trinom Ltd	Zurich Re	2001	Wind, EQ	60	2004	BB	L+800
			Wind, EQ	97	2004	BB+	L+400
16 Western Capital	Swiss Re	2001	EQ	100	2003	BB+/Ba2	L+510
17 Atlas Re II	SCOR	2002	Multi-line	/	/	/	/
			Tranche A	50	2005	A/A3	L+237.5
			Tranche B	100	2005	BB+/Ba2	L+675
Total				2087			

\* Source: Bloomberg

\*\* Source: Article by Lane Financial 04/01: Current Trends in Risk Linked Securitization

\*\*\* Discrepancies due to small issue of shares/equity in addition to bonds/notes

## Market participants

- 4.31 The main participants in the insurance risk transfer markets are the structurers and market makers, ceding companies (mostly global insurers and reinsurers) and the ratings agencies, and modelling companies. Investors include life companies, and a variety of funds as well as reinsurers.
- 4.32 There was a feeling among some that the cat bond market was being talked up by the investment firms who had invested resources in structuring the deals. It was suggested that there were four main market makers – investment banks and large insurers – although some banks have been involved in a couple of transactions.
- 4.33 Insurers and reinsurers are originators in this market – one quote was that ‘everyone has experimented with one’. These include mostly the Bermudians

and European reinsurers. Reinsurers are also the major investors in cat bonds (although according to some, they only take 15-20 per cent of the issues, while others suggested their share is higher at around 30 per cent). So the market does not constitute a solely cross-sector transfer.

- 4.34 Life insurers were said to be the second largest investors in the cat bonds market, followed by hedge funds, and other funds – including pension funds. The investor base was said to be 35 per cent in Europe, with the rest in the US.
- 4.35 The modelling companies play an essential role in these markets as do ratings agencies. Both facilitate the structuring and marketing of the issues because they are seen as a source of independent advice.

### **Drivers of the transactions**

- 4.36 This section analyses the drivers of insurance securitisations with a particular focus on the catastrophe market. This needs to be looked at from two points of view: that of the company purchasing the protection (that is, the insurer or reinsurer) and that of the investors supplying the capital.
- 4.37 For the insurer or reinsurer, the issuance of cat bonds is driven mainly by the desire to eliminate cyclical capacity shortages inherent in the traditional reinsurance markets and to build alternative sources of capacity. In non-cat securitisations on the other hand, insurers are mostly motivated by capital constraints or funding needs, or both.
- 4.38 For investors in insurance-linked securities, the major drivers are diversification of exposure in their investment portfolio and the high yields associated with cat bonds.

### **Limited capacity in the traditional markets**

- 4.39 In 1992 Hurricane Andrew caused \$19.6 billion of insured losses. This was followed in 1994 by another major catastrophe event: the Northridge Earthquake (\$13.5 billion insured losses). So, the reinsurance industry experienced significant losses and some insolvencies, reinsurance premium rates doubled, and there was a net reduction in the catastrophe coverage available to primary insurers. Total reinsurance capacity in 1992 was about \$200 billion and so a \$50 billion loss would have represented a significant erosion of the industry's capital base at that time.
- 4.40 In 1997,<sup>11</sup> Swiss Re estimated that a Californian earthquake loss could reach \$65 billion and a Florida windstorm \$56 billion. In contrast, recent research

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11 Sigma 7/1997, Swiss Re.

by the Reinsurance Association of America<sup>12</sup> suggested that the global reinsurance capital surplus may be between \$100 billion and \$200 billion (it is often difficult to distinguish capital supporting reinsurance from direct business), based on estimates of global reinsurance premiums written of around \$100 billion. Such potentially large losses and limited traditional reinsurance capacity have led to a search for alternative sources of capacity. The capital markets could provide an alternative and stable source of capital – although reinsurers account for a significant share of investors in cat bonds.

- 4.41 Cat bonds also provide the opportunity to get cover for risks for which capacity is non-existent. Repeat loss activity in a certain area can lead to reinsurance becoming very expensive or totally unavailable (for example windstorm cover in Florida). Most contracts also appear to renew towards the end of the year, which can compound any ‘squeeze’ associated with hardening rates. The cat bond sponsored by USAA was driven by the desire of the company to cover exposures beyond \$1 billion in the Florida area – a demand that could not be met by traditional reinsurers (see Annex G).
- 4.42 Further, the capital markets provide a means of diversifying cover; that is to say not all of the (re)insurers’ reinsurance needs to be provided by the traditional market. Several of the second tier reinsurers have been hit following 11 September 2001 because of both underwriting losses and the ensuing market downturn. Once a (re)insurer has experimented in the alternative market – and so become familiar with the process – it becomes easier to access the market at somewhat shorter notice, if there is a drought or deterioration in traditional capacity.

### **Relative cost**

- 4.43 The cost of a cat bond compared to the cost of traditional reinsurance (that is the relative rather than the absolute cost) is the major determinant of its attractiveness. Traditional reinsurance premium rates fluctuate cyclically in response to the amount of capital in the market (in a hard market, the cost of cat bond cover may become more attractive relative to the cost of traditional reinsurance, while it may be too expensive in a soft market).
- 4.44 However, the cost of cat bonds is high and, therefore, they will not usually be competitive compared to reinsurance rates. This is partly because of conservative ratings; rating agencies adjust the modelled probabilities of loss upwards to account for the unpredictable nature of events and associated difficulties in modelling. The costs needed to set up a structure (including ratings agencies’ and modelling agents’ fees) are also significant. Participants suggested that it costs around \$1m to set up a cat bond structure; one thought

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12 The research was based on estimates from different sources, including, Morgan Stanley, S&P and AM Best. The report can be found at: [www.raanet.org](http://www.raanet.org)

that the costs range from under \$1m and some cost \$2m; the costs of earlier transactions had been higher than more recent deals. These costs were said to be not out of line with other similar structured transactions. These costs emphasise that there must be a critical mass of risks available to the issuer before engaging in such a transaction. Table 6 gives more details of the spreads on cat bonds.

- 4.45 Also, the lack of liquidity in the market leads to significant pricing anomalies. One participant thought that the rate on line for cat bonds was about 8 per cent when similar risks could be reinsured at 1-2 per cent (although post-11 September 2001, the gap was likely to have closed). It was also suggested that potential arbitrage opportunities between the two markets are undermined because some of the capital markets investors are also reinsurers who have a vested interest in making sure that the two markets move together.

#### **Structural advantages of cat bonds.**

- 4.46 Cat bonds have certain structural advantages over the traditional reinsurance markets. This makes them more desirable to the ceding companies. These advantages can include a reduced counterparty risk (that is, the risk that the reinsurance cover will not pay out when a claim is made) because the money is invested in a fund and ring-fenced exclusively for the payment of claims.
- 4.47 There is a general desire from the insurer to get a risk-financing instrument that is both quicker and cleaner than traditional reinsurance to respond to a loss event. This may have arisen from the increasing contractual disputes in traditional reinsurance arrangements and the delays in settlement. A securitised deal, however, should – when a claim occurs – give rapid payment, so minimising timing risk. The residual timing risk can be fully eliminated by the use of a liquidity provider (although these are not, in practice, a common feature and securitised structures are able to secure a prompt payout without them). The ‘clean response’ does depend, however, on the clarity of the trigger, and there may be substantial basis risk for the ceding companies – as opposed to the investor – in clearer triggers (see paragraph 4.62).

#### **Other factors for sponsors**

- 4.48 Market participants said some transactions were aimed at arbitraging rating agencies’ capital models. Also, one participant felt that some insurance companies use ART as a marketing tool. They want to be seen to be active in a market that is perceived to be innovative. However, other participants thought that the fragmented involvement of insurers was also about ensuring that the company has the skill to build an alternative to traditional reinsurance.

## **Capital constraints**

- 4.49 Market participants emphasised the role of capital constraints in securitisations of non-catastrophe insurance risk. In demutualisations, the need for funding is acute and may be a driver for securitisations. Capital constraints could provide the impetus for life securitisations and interest may grow in Europe as the introduction of the Insurance Groups Directive and EU Solvency Review increases the importance of capital management in insurance companies.

## **Diversification of exposure in investment portfolio**

- 4.50 Considering motives for investors in cat bonds, these instruments help diversify investment portfolios outside traditional market assets (that is they are investing in reinsurance underwriting risk instead of equity /interest/ exchange rate risk). It was suggested that the main driver for investors in cat bonds is the loose correlation between interest rate, equity and catastrophe risk. However, there is always the possibility of risks that are perceived to be uncorrelated becoming inter-related, for example an earthquake in California (causing property damage, etc) having an impact on the Nikkei (causing share prices to fall and investments to lose value). There was no consensus among the firms that we visited about the extent of potential diversification benefits, although this appears to be a significant selling point for market makers.
- 4.51 Where the investor is a reinsurer then the potential diversification effect – that is gaining exposures to different types of cat risk – will be a major consideration. For example, one small reinsurer suggested that the deal they invested in was motivated by the desire to acquire exposures to markets where they did not have a presence. Some have argued that such an investment is equivalent to ‘quasi-underwriting’ and may be a way round regulatory requirements. If the risk underlying the bond is correlated to other underwriting exposures of reinsurers, a legitimate question must be how reinsurers manage the potential concentrations. Another suggestion was that there might have been an element of ‘you take mine and I’ll take yours’, as reinsurers experimented with the structure.

## **High yields**

- 4.52 Another driver for investing in a cat bond is the potential for a higher yield compared to other investments. This is particularly marked in an era of declining interest rates. Cat bond spreads tend to be higher than similarly rated corporate debt. The high yields compensate investors for the relative illiquidity of cat bonds, the model risk, and the non-traditional nature of the securities.

### **Clear definition of loss event**

- 4.53 The move to parametric triggers has also increased the attractiveness of cat bonds to investors, by providing a clear definition of the loss event through the use of a well-defined index. But one market maker thought that, as investors become more familiar with the risks, they would be more willing to accept indemnity-based deals.

### **Perceived risks in insurance risk transfer markets**

- 4.54 This section examines some of the most common risks associated with insurance risk transfers.

#### **Legal/documentation considerations**

- 4.55 There is some uncertainty about the legal position of ‘investors’. The issue is whether or not investors in some structures are deemed to be conducting insurance business, and the legal position may differ depending on the jurisdiction. In 1998, the New York State insurance regulators ruled that non-insurance counterparties could enter into an insurance-linked swap whose payments are not linked to the ceding company’s actual losses. Index trigger deals reduce the risks of disputes around claims, but there may be more significant legal issues in indemnity-based transactions, where the boundary between investment and insurance business may be more of a grey area.
- 4.56 There is also an issue about the status of the intermediate vehicle used to channel the transaction. The NAIC SPRV Model Act (2001) states clearly that an investor in cat bonds is not engaging in insurance business. This issue is under discussion more widely in the IAIS Securitisation Sub-Committee. One major structurer said that they get external legal opinions in each jurisdiction in which a deal is structured that it does not constitute insurance business.
- 4.57 Many of the participants we spoke to felt confident that the legal structures would be robust. Indeed, the capital markets discipline around these deals – for example issues of prospectus – involves more scrutiny than traditional reinsurance contracts. They thought that the risk of disputes may be less than in traditional reinsurance markets, where the finalisation of the contracts can be slow and the terms more loosely defined.
- 4.58 One market maker was aware of a loss under one deal, and mentioned that in a separate deal, the issuer could have claimed, but under-estimated the exposure and did not serve notice. Another market maker said that there had been losses in two issues in which they had been involved, and they were aware of another two. However, they were not particularly concerned about settlement disputes for these transactions.

### **Speed and cost of structuring the deals**

- 4.59 Cat bonds take time to arrange, and it is not possible to put transactions together on a ‘quick and dirty’ basis to meet a capacity shortage. Similarly (and compounded by the legal uncertainties above) the costs of structuring the deals are high.

### **Limited number of available risks**

- 4.60 One of the main limitations in the market is the limited number of risks that are suitable for cat bond coverage. The largest cat risk is the mid-US fault line, followed by US eastern seaboard, the US West Coast fault, European windstorm and Japanese wind and earthquake. It is estimated that there are 14 types of cat risk in all. However, modelling companies may be developing tools for new areas of risk – for example European flood.

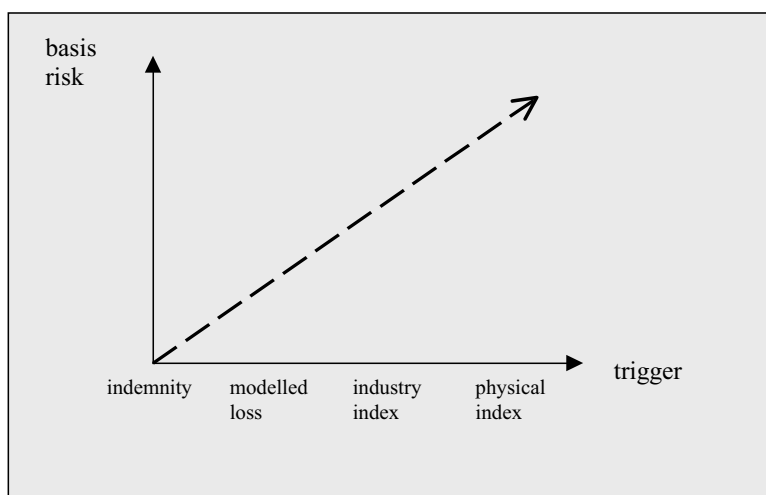
### **Investor unfamiliarity**

- 4.61 The lack of familiarity with cat risk, and the fact that it deals with ‘extreme loss’, was seen by some as the reason for investors shunning the market. Non-insurance investors were thought to rely heavily on the rating agencies, which have a conservative attitude to such instruments. In particular, they would adjust downwards the modelled probability of loss to capture modelling uncertainty before matching the bond to a rating level.

### **Basis risk**

- 4.62 Companies looking for reinsurance cover for cat risk usually want complete indemnification with no basis risk. This is particularly true for smaller companies – larger reinsurers may be better placed to take some basis risk. In comparison, sponsors do not see the positive features of parametric triggers (for example speed of payout) as significant. The basis risk can be very significant, as models can be highly inaccurate. According to one participant, the model that came closest to predicting the effects of Hurricane Northridge was out by a factor of 13. It should be noted that basis risk can have positive as well as negative effects for the ceding company – it is possible that a model would predict a greater payout than the incurred loss.
- 4.63 Figure 8 depicts the theoretical relationship between the type of trigger and the basis risk to a ceding company.

**Figure 8: Basis risk in cat bonds**



### **Liquidity risk**

- 4.64 One of the main risks for investors in cat bonds is the lack of a liquid secondary market. We heard conflicting accounts about the size of the secondary market, with perceptions that there is none, that it is very small, and that it is small but growing. One market maker thought that demand for cat bonds exceeded supply, but one broker said bluntly that ‘there is neither enough demand nor supply’. This poses the risk that investors need to hold the asset to maturity or can only find buyers who demand a significant liquidity discount. A further risk exists for the market makers who need to keep some of the bonds on their books to maintain at least the appearance of market liquidity.

### **Protection of proprietary information**

- 4.65 Some cat bonds and life and motor securitisations require the disclosure of a significant amount of information about the book of business of the ceding company. Capital markets discipline warrants significant disclosures on the underlying risks (and more so than in the traditional (re)insurance market), and insurance companies may be reluctant to disclose this proprietary information. This is most significant in indemnity-based and modelled loss portfolio transactions. One UK insurer told us that this was a significant factor in their assessment of motor securitisations.

### **Risk management**

- 4.66 Transactions usually need to be approved by an underwriting committee (a committee of senior executives empowered to make underwriting decisions for the company). For market makers, risk management procedures would be the same as for other structured products and would need to be approved by the underwriting or risk committees or both. One small insurer said that

their risk management processes would mirror those for credit risk and they would monitor the deals and identify concentrations on both sides of the balance sheet.

### **Regulatory treatment**

- 4.67 A recent study by Swiss Re<sup>13</sup> highlighted a survey which showed that insurance companies perceive that clarification by regulators of the rules governing the use of catastrophe insurance options is the main factor that would increase their use. One market participant noted that the opposition of some insurance supervisors to certain offshore jurisdictions for reinsurance protection was a major obstacle.

### **Regulatory treatment**

- 4.68 Current insurance regulations allow the recognition of embedded value securitisations and reinsurance to reduce long-term insurance liabilities, subject to actuarial principles. We are reviewing our prudential rules on securitisation and risk transfers for banks and investment firms. However, the proposed rules will not at this stage cover insurance risk transfers. There is also a number of banking rules governing the use of derivatives as risk mitigants.
- 4.69 Three regulatory treatments can be envisaged for ceding companies transferring insurance risk:
- (i) Treat the transaction as reinsurance – indeed, many of the transactions are effectively reinsurance agreements, with the difference that the funding of the liability is ring-fenced, should a claim arise. Pre-funded structures reduce counterparty risk for the ceding company compared to traditional reinsurance.
  - (ii) De-recognition of the liabilities – this would mirror the treatment of asset securitisations proposed in the *Integrated Prudential Sourcebook*. This treatment would imply a true transfer of the liability, which is unlikely to arise unless the policy is assigned to the counterparty, either through novation (in which case, the policyholder’s consent must be obtained in advance) or through a formal transfer of business. This ‘true sale’ may be more difficult to achieve than in an asset securitisation. The policyholder will likely have concerns about a counterparty from whom they might claim an uncertain amount in the future – a borrower, on the other hand, will be liable to the new counterparty for a contractual and specified amount.

(iii) Treat the transaction as a derivative transaction subject to the effectiveness of the hedge provided by the transaction.

4.70 One rating agency said that they see indemnity-based cat bonds as akin to traditional reinsurance contracts, giving the lack of basis risk and little credit risk as reasons. In their opinion, a properly structured cat bond – especially one with an indemnity trigger – served the same function as a traditional program of reinsurance. If the cat bond deal involved an index trigger then they would look at the effectiveness of the hedge (that is the amount of basis risk involved).

## **Risk assessment of insurance risk transfers**

### **Risks to our objectives**

4.71 Annex H summarises the risks inherent in the insurance risk transfer market, and maps these against the risks to our objectives and the assessment of these risks following our meetings with firms. Were these markets to grow rapidly, the risks identified could potentially affect our market confidence and consumer protection statutory objectives, although a sizeable increase in volumes does not seem likely in the immediate future.

4.72 The risks identified include:

- lack of senior management oversight;
- inadequate systems and controls;
- basis risk in non-indemnity structures;
- liquidity risk;
- inadequate operational risk controls;
- unregulated nature of the market; and
- major catastrophic event.

### **Impact assessment**

4.73 The outstanding volumes in cat bonds are believed to be of the order of \$2 billion. This compares to an estimated reinsurance capacity of around \$100-200 billion. Insurance risk transfers are therefore limited at present. They also tend to involve major global wholesale insurance players and UK firms have had a limited presence.

4.74 Looking to the future, there was uncertainty about the potential for growth in the cat bonds market. On the other hand, there was interest in developing the securitisation of retail insurance books, in particular life securitisations. There is a limited market for these transactions at present.

# 5 Conclusions and recommendations

- 5.1 This chapter sets out our conclusions. Please note that these conclusions are drawn within the scope of the work outlined in this paper, and not a wider review of the activities of UK regulated firms.

## **Benefits**

- 5.2 Cross-sector risk transfers allow credit risk and catastrophe risk to be spread to a wider range of economic participants, potentially better able to bear that risk, and so promote diversification. This could mitigate the impact of downturns or catastrophic events on the financial industry, as losses can be spread across a wider range of firms.
- 5.3 Risk transfer ‘technologies’, for example synthetic CDOs, enable the banking sector to transfer exposures which they find uneconomic or beyond their risk appetites more cheaply than standard securitisations. So it increases the range of risk management tools available to the industry.
- 5.4 The technology also allows insurance companies to acquire a diversified portfolio of assets that would not otherwise be available, or available on less attractive terms, in the cash market. Unlike banks, most insurance companies do not originate credit risk on a significant scale; so credit risk transfers give insurance companies the opportunity to gain exposure to a wider range of credit risk than would otherwise be available. The demand for corporate credit risk has also increased to compensate insurers and other fund managers for the decline in the supply of government bonds and unattractive equities.
- 5.5 Using the capital markets to fund extreme catastrophes could mitigate the impact of natural disasters on the reinsurance industry, although the costs of this technique have proven somewhat prohibitive for active risk management. In effect, the capital markets provide a source of alternative capacity in the catastrophe sector. Also, the use of cat bonds could reduce the concentration

of risks in the hands of a few reinsurers – with the caveat that re-insurers are also investors in cat bonds.

- 5.6 Life securitisations could potentially ease capital constraints in the life insurance sector – as mortgage securitisations have done for banks.

## **Risks**

- 5.7 The amount of cat bonds in issuance stands at around \$2 billion and is concentrated among the large global reinsurers and institutional investors. So the impact of this market is fairly limited at present.
- 5.8 In contrast, some estimates put the involvement of insurance companies in the global credit derivatives markets at around \$300-400 billion (based on notional amounts). The large size of the transactions, and relatively small number of the main insurance players in this market (in particular the monolines and reinsurers) means that the risk becomes relatively concentrated. However, these insurers tend to be involved in the more senior tranches of credit risk transfers. Losses in these risks would not crystallise except under the worst circumstances, when the impact of more general credit deterioration on banks would be a greater concern.
- 5.9 However, this project identified the potential for significant losses to individual firms and the potential for further growth of these markets. The potential risks to our objectives are set out in detail below, but fall into three broad categories:
- (i) inadequacy of systems and controls and senior management oversight;
  - (ii) failure of the regulatory regime to capture the risk; and
  - (iii) lack of transparency.
- 5.10 The potential risks listed below mainly affect our market confidence and consumer protection objectives. On the consumer protection side, the risk would be that firms fail to understand and manage the risks properly and fail to carry appropriate capital against them. These failures could cause losses to firms that would put consumers' interests at risk. There are also risks to market confidence if the market grows sufficiently to give rise to systemic concerns.
- 5.11 Potential risks include:

### **Inadequate systems and controls and a failure of senior management to appreciate the risks**

- 5.12 For insurance companies, the main risk is the failure of senior management to scrutinise the activities and appreciate the capital and risk management

expertise needed to support them. Specific issues include the lack of adequate group-wide risk management systems to identify, monitor and manage exposures taken in different business units or functional areas (for example underwriting and investment activities).

- 5.13 Risk transfer structures are complex and skilled staff and appropriate systems are needed to ensure the proper assessment of the risk to the firm and the monitoring of positions. There should be appropriate approval procedures in place to ensure that senior management are aware of and set the strategy for such activities. The introduction of the Insurance Groups Directive in 2001 and our renewed emphasis on senior management responsibilities and systems and controls should help to promote these principles.
- 5.14 For banks and investment banks, the main risks in credit risk transfers are the lack of senior management understanding of the effectiveness of the risk transfers – or lack of effectiveness. A core few, mostly investment banks, are involved in the majority of these deals.
- 5.15 Risk transfers in general, including synthetic CDOs, are often complex products. Valuation and the extent of risk mitigation provided are complicated by the structured nature of these products. At one basic level, the issue is whether effective due diligence is performed on counterparties – are they sufficiently creditworthy and willing to pay? Some disputes have highlighted that participants may not have a common understanding of the contracts they have entered into – in particular, the extent to which the protection seller views the contract as an unconditional obligation to pay.
- 5.16 In addition, systems must be adequate to help senior management understand and determine two things. First, the extent of risk retention – since many transactions involve temporary or more permanent retention of some of the risks, especially at the riskier end. And second the impact of the transaction on the overall portfolio of the bank. Senior management of the most active players also need to be aware of the potential reputational risk of these activities.

### **Mispricing Risk**

- 5.17 Pricing of the more complex structures is a challenge, even for the more sophisticated banks. So there is a risk of mispricing by the less sophisticated market participants. And the state of the different markets, in particular a soft insurance market, could lead to underpricing the risk as a way of increasing premium volumes and income.

### **Operational risk issues**

- 5.18 Legal and documentation risks are well-recognised in the market. The risks may be, and generally are, mitigated by firms getting internal and external

legal opinions on the enforceability of the transactions and through trade bodies developing standard documentation. However, legal disputes have arisen and some of the structures have not been legally tested.

### **Shortcomings in the regulatory framework**

- 5.19 This paper highlights that different regulatory requirements across sectors, coupled with the lack of sensitivity of the current Basel Accord, may lead to regulatory arbitrage incentives – in particular for banks to transfer highly-rated risk using structured transactions. The review of the Basel Accord should reduce these incentives.
- 5.20 This paper also shows that the current solvency requirements for the underwriting of credit insurance would be lower where the risk has been underpriced. So the level of prudence could depend on the quality of the risk assessment by the firm. On the investment side of insurance companies, regulatory requirements mostly hinge on diversification and eligibility of the assets. There are also implicit margins on the assets of life insurers, although this implicit prudence can be opaque to outsiders. In addition, the current reporting and disclosure requirements both on the underwriting and investment activities of insurers fail to clarify the extent of insurance companies' involvement in credit risk transfer activities. These issues are not unique to cross-sector risk transfers but reflect concepts of wider relevance to the prudential regime for insurance companies.

### **Lack of transparency – the role of unregulated and offshore institutions**

- 5.21 This project highlights the pivotal role of global reinsurers and offshore jurisdictions in cross-sector risk transfers – many of the transactions involve one or the other or both. This causes concerns about the volumes of credit and insurance risks being taken on by unregulated reinsurers or passing through offshore centres, which are subject to lesser standards of disclosure and lower capital requirements. The concern is that we do not know enough about where the risks ultimately reside and whether adequate capital is being held against them. Greater international co-operation and the introduction of global minimum standards of financial regulation, including for reinsurance companies, would alleviate some of these concerns. There is also a clear interest for supervisory authorities such as ours in promoting these efforts.

### **Recommendations**

- 5.22 We need to keep the developments of this market under continued surveillance. Follow-up actions are described below.

- **Through monitoring of these markets, to identify growth and changes in the dynamics of the market.**
  - **Through firm-specific supervision where these transfers are growing or where they appear to be inadequately managed, as appropriate under our risk assessment framework of supervision.**
  - **Through improvements in regulatory and reporting requirements to ensure that the risks are adequately captured.**
- 5.23 We will consult soon on proposals to reform the reporting requirements for regulated firms. This project suggests that there is a need to look at the adequacy of current requirements and their ability to capture the key risks to which firms are exposed in credit risk transfer transactions.
- 5.24 In particular, some of the credit risk transfers underwritten by insurance companies have many of the characteristics of financial instruments rather than traditional insurance contracts. We will consider whether these activities (that is, bond wraps and insurance and reinsurance of credit derivatives) are different enough from other insurance business to warrant separate disclosure. This could help us to monitor the involvement of insurance companies as underwriters of the risk.
- 5.25 We will also consider new reporting requirements to improve the quality of information about the investment activities of insurance companies. This should help assess insurance companies' involvement in asset-backed securities.
- 5.26 We also note the need to do more work on life securitisations to set a clear line on the recognition of these instruments for regulatory purposes, as and if the market develops further.
- **Through international discussions and initiatives to discover more about the cross-border aspects of these transfers, and where the risks ultimately reside.**
- 5.27 The markets considered in this paper are international. This emphasises the need for us to cooperate with other supervisors. We believe that this should give us a fuller picture of these markets and help us achieve our statutory objectives, in particular our market confidence and customer protection objectives.
- 5.28 We will continue to take part in international discussions on cross-sector risk transfers, for example the International Association of Insurance Supervisors (IAIS) work on Credit Risk Transfers and Securitisation.
- 5.29 This paper highlights the crucial role of reinsurers in cross-sector risk transfers. Some of the concerns highlighted in this paper, including the significance of transfers to unregulated reinsurers, can only be addressed

through minimum standards of supervision for reinsurers. We already contribute to the reinsurance initiatives in the IAIS and the EU – where there is a proposal for a directive on reinsurance.

- 5.30 The Joint Forum is another group of regulators that is well placed to take a broad view of these markets in the international arena. It recently published a cross-sector comparison of risk management and capital.<sup>1</sup> As a follow-up, it will be looking at the challenges for supervisors posed by new risk transfer techniques and off-balance-sheet entities of financial institutions. We will take part in these discussions.
- 5.31 We will also continue to play a pro-active role in the Review of the Basel Accord, which is considering the operational risk requirements for credit derivatives and securitisation vehicles. We will also be doing further work domestically on the treatment of portfolio credit default swaps in the trading book. No international initiative is tackling this issue at present, but we will seek to work with other regulators world-wide to ensure that our treatment is consistent with the treatment of these transactions elsewhere.
- 5.32 We also believe that there is merit in further work on the accounting treatment of those transactions that are used for cross-sector risk transfer. Given the global nature of these markets, the introduction of International Accounting Standards for listed companies' consolidated accounts in Europe in 2005, and the UK Accounting Standards Board's convergence project, it is inevitable that the focus for this purpose should be on international accounting initiatives.
- 5.33 In particular, two of the International Accounting Standards Board's priority projects are highly relevant: the improvement of IAS 39 on financial instruments, and the development of an International Accounting Standard on insurance contracts. The transactions used for cross-sector risk transfer lie at the boundary between these two initiatives and it will be important for the accounting treatment to achieve a proper reflection of the substance of these contracts, irrespective of on which side of the boundary they fall, or their precise legal form. We will contribute to these initiatives as part of our wider involvement in international accounting discussions.
- **Through messages to firms about the need for them to pay close attention to the risks of these markets.**
- 5.34 This Discussion Paper forms one element in the process of communicating our concerns to firms. Speeches to targeted industry conferences and seminars also provide an effective way of highlighting issues of concern to us, especially where the problem is inadequate risk management.

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1 This can be found on the website of the Joint Forum's parent organisations, BIS at [www.bis.org](http://www.bis.org), IAIS at [www.iaisweb.org](http://www.iaisweb.org), and IOSCO at [www.iosco.org](http://www.iosco.org). 'Risk Management Practices and Regulatory Capital – Cross-Sectoral Comparison', November 2001, Joint Forum.

# 6 Questions for discussion

## Market characteristics

Q1: Does the description of the market in this paper agree with market participants' experience, in particular, of:

- size of the market and magnitude of transactions?
- drivers of the transactions?
- types of transactions?
- roles of different market participants?
- the role of offshore/unregulated institutions?
- risks to firms?

Q2: Does this paper give sufficient weight to the role of regulatory incentives in the market for cross-sector risk transfers?

Q3: Do market participants have practical suggestions to help us monitor market developments, including our assessment of the ultimate distribution of credit risk transfers?

Q4: The paper identifies differences in the pricing of credit risk across the sectors. Can market participants provide estimates of this differential? In your opinion, what are the main causes for these differences?

## Lessons for regulators

Q5: Does the current regulatory regime create extra layers of complexity or uncertainty? In what areas?

- Q6: To what extent would guidance help clarify some of the boundary issues identified in this report – for example insurance versus credit derivatives and insurance versus insurance-linked securities? What factors and market developments should we consider?
- Q7: Do market participants think that the underwriting of financial risk by insurance companies is sufficiently different from other insurance activities and has reached a sufficient scale to require separate prudential requirements? What criteria could be used to distinguish transactions in this class of business?
- Q8: We believe that, given the international nature of these markets, shortcomings identified in the regulatory regime should be pursued principally in international initiatives. Are there also UK-specific issues that need to be dealt with domestically?



# Transformers

The term ‘transformer’ can be used by different participants to refer to different structures. In its more generic form, it refers to an entity that facilitates the transformation of a financial instrument (for example a credit default swap) into an insurance contract, or vice versa. This process can be facilitated by, for example, setting up a Special Purpose Vehicle (SPV) or a Protected Cell Company (PCC). Some jurisdictions, however, allow insurance companies to undertake non-insurance financial activities (for example Bermuda). Some participants will use the term ‘transformer’ solely in relation to insurance companies that take advantage of this extended scope of business.

## **Special Purpose Vehicles**

An SPV is used in structured finance transactions to isolate the risks of the underlying assets from the risk of the sponsor or risk transferor – hence providing bankruptcy remoteness for the investor. SPVs are used more commonly in cash securitisations but are also used in synthetic securitisations to issue credit-linked notes.

A credit-linked note can be issued through an SPV. The sponsor (protection buyer) enters into a credit default swap with the SPV, which issues notes to investors and invests the proceeds in some specified collateral assets – normally highly rated assets. A trustee will administer the collateral on behalf of the investors. If there is a credit event, the collateral is liquidated and the SPV will make a payment to the credit default swap counterparty. As the SPV is a legal trust or company that is bankruptcy remote from the sponsor, any default by the sponsor will not affect the investor, whose unique exposure will be to the embedded credit derivative. An SPV can be used to issue notes linked to other derivatives, for example an interest rate swap.

## Protected Cell Companies

The PCC, a particular type of transformer, is a recent innovation in a number of jurisdictions around the world, for example Guernsey, Bermuda, Cayman Islands, Mauritius etc. Although the robustness of the structures have yet to be legally tested, the protected cell company model seems to have proliferated, with many US states now enacting protected cell legislation – South Carolina (2000); Iowa (2000); Kentucky (2000); and Illinois (2001). From a UK perspective, the Guernsey legislation appears popular. The following outlines the Guernsey model. Most jurisdictions will be a variation of this model.

In the Guernsey model, a PCC is a single entity that can create an unlimited number of cells, each of which can provide for the legal separation and protection of the assets of each individual cell. The single legal entity may issue core shares (non-cellular) and cell shares. This, in effect, creates two classes of assets – non-cellular assets, which are assets of the PCC itself and cell assets, which are assets of each respective cell. The creditors of an individual cell of a PCC will have no access to the assets of any other cell. However, the creditors of each cell, where there is also a liability of the PCC, will also have recourse to the non-cellular assets.

Once permission has been given to set up a PCC (or convert an existing company to a PCC), the company must be clearly designated as a protected cell company with the letters ‘PCC’ in the company name. The directors of the company will be personally liable where they fail to disclose the company’s PCC status to any person with whom it transacts business, and there are restrictions on the transfer of cellular assets.

As at 31 January 2001, Guernsey had 28 PCCs with 138 cells formed for insurance purposes, and 35 PCCs with 142 cells formed for investment fund purposes.<sup>1</sup>

The Guernsey Financial Services Commission looks at four key areas in the approval process of an insurance PCC.<sup>2</sup>

- (i) Source of the insurance business
  - Tests of fitness and propriety
- (ii) Management expertise
  - Requirement to demonstrate the expertise and technical resources to deal with the necessary segregation of assets within the company.

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1 Footnote to ‘Another Pioneering Step for Financial Services Business’, Press Release, Guernsey Financial Services Commission.

2 Protected Cell Companies for Insurance Purposes, Guernsey Financial Services Commission.

(iii) Solvency

- The share capital may be non-cellular, divided between the cells, or a combination of both. The solvency assessment will take account of the share capital and risk mix as a whole.

(iv) Exposures

- All exposures should be adequately covered by a combination of core and/or cell capital. A detailed business plan needs to be submitted for the PCC and usually a separate business plan will be required for each new cell.



# Legal boundaries

## Credit Derivatives – Insurance Business?

Are credit derivatives insurance business? If a credit derivative was construed as an insurance contract there would be a number of consequences. Two of the most significant are set out below:

Utmost good faith      In a non-insurance contract, the terms are *caveat emptor* (let the buyer beware). But in an insurance contract both parties are subject to a duty of ‘utmost good faith’ that requires pre-contractual disclosure of all facts material to the risk. It is possible, however, with appropriate wording, to contract out of the duty of utmost good faith, either by excluding or limiting the duty of disclosure.<sup>1</sup>

Insurable interest      For a contract of insurance to be valid, there must be an insurable interest, i.e. the insured must be able to show both an economic and a legal connection with the subject matter of the risk. In some credit default swaps it will be possible to show that the protection buyer has such an interest. However in, for example, a speculative swap, where the protection buyer has no connection with the reference entity the protection buyer is unlikely to have an insurable interest.

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<sup>1</sup> Confirmed in *HIH Casualty and General Insurance Ltd and others -v- Chase Manhattan Bank and others* Court of Appeal (Civil Division), [2001] EWCA Civ 1250, [2001] 2 Lloyd’s Rep 483 31 July 2001.

## The Potts QC Opinion (Potts)

In June 1997, ISDA sought legal advice on the issue of whether a credit default swap could be construed as a contract of insurance. Potts' advice concluded that, as credit derivatives are not structured to provide an indemnity for loss (i.e. they are structured to pay out on the occurrence of the reference event, irrespective of whether the protection buyer suffers a loss), they did not fall within the Insurance Companies' Act (ICA) 1982. The fact that in some cases the economic effect might be equivalent to insurance was not conclusive in his view. He suggested that, for the purposes of clarity, a clause should be inserted in the standard ISDA contract to the effect that the parties do not intend to enter into an insurance contract.

If a credit derivative fits perfectly into the factual assumptions on which the Potts opinion is based, then some degree of comfort can be taken from this view. However, not all credit derivatives fit within the parameters of Potts' opinion. Potential weaknesses exist in the following cases:

- (1) Contracts drafted pre-ISDA documentation standards, and pre-Potts' opinion are unlikely to have the 'no intention to insure' clause and may be drafted in a way that constitutes insurance;
- (2) Where the reference event is defined in such a way that it is conceptually impossible, at the time the contract was entered into, for the event to occur without the protection buyer suffering a loss, the contract may well be insurance. (This might be the case where, for example, the protection buyer was buying protection on a loan that he had originated, which was not transferable or liquid);
- (3) It is not clear law that only contracts that respond to (and so provide indemnity against) actual loss can be contracts of insurance;
- (4) One of the parties to the contract may produce evidence that the true intention of the parties was to insure against loss. If this can be proved, it may override any 'no intention to insure' clause.

## Insurance Regulation Pre and Post N2

Before the entry into force of the Financial Services and Markets Act (FSMA) on 1 December 2001 (so-called 'N2') insurance business could not be conducted in conjunction with any other business that was not "in connection with, or the purposes of" that insurance business.<sup>2</sup> This restriction remains post N2. It is implemented by a rule in the *Interim Prudential Sourcebook for insurers*: 'An insurer must not carry on any commercial business in the United

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2 Section 16 of the Insurance Companies Act 1982.

*Kingdom or elsewhere other than insurance business and activities directly arising from that business*'.<sup>3</sup> Insurance business is defined as 'the business of effecting or carrying out contracts of insurance as principal'.

The definition of 'contract of insurance'<sup>4</sup> is not prescriptive; it simply includes or excludes specified kinds of contract from the ordinary common-law definition of a contract of insurance. Accordingly, insurance companies can engage in, for example, credit derivative activities in connection with insurance activities (for example for hedging purposes). However, as things stand, insurance companies cannot sell non-insurance protection through credit derivatives. The consequences of a breach of the boundary have changed with the enactment of the FSMA, however.

In respect of non-insurance firms, pre N2, anyone carrying on insurance business without authorisation was guilty of a criminal offence.<sup>5</sup> A contract of insurance, entered into in the course of carrying on insurance business in contravention of the authorisation provisions of the Insurance Companies Act, was unenforceable by the insurer.<sup>6</sup> However, post N2, there is a distinction between trading without authorisation and trading without permission. If an authorised person carries on a regulated activity otherwise than in accordance with the permissions granted, he will have contravened a requirement imposed upon him under FSMA.<sup>7</sup> However, the contravention does not make the person guilty of an offence or render the contract unenforceable.<sup>8</sup> The consequences are more serious if a person carries on insurance business in breach of the general prohibition.

So the consequences of credit derivatives being classified as insurance (or vice-versa) have changed since the enactment of the FSMA. In particular, a breach of the boundary by an authorised person no longer makes that person guilty of an offence, nor does it make the transaction void.

## **Transformer Structures**

Annex A shows that various entities can be used to 'transform' a credit derivative into an insurance contract. In essence, the legal entity sells protection to the bank and insures the credit risk with the insurer. Basis risk in the entity is minimised by making the transaction back-to-back, i.e. the insurance contract incorporates ISDA documentation.

An issue that has been identified is the risk of a court holding that the insurance policies written through a transformer were a sham. This issue has

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3 Interim Prudential Sourcebook for Insurers, 1.3 (1).

4 Article 3 of the Regulated Activities Order.

5 Section 14 of the Insurance Companies Act 1982.

6 Section 132 of the Financial Services Act 1986.

7 Section 20(1) of the Financial Services and Markets Act 2000.

8 Section 20(2)(a) and (b) of the Financial Services and Markets Act 2000.

been identified by one legal adviser<sup>9</sup> who recommended that insurers do not incorporate ISDA documentation into the contract of insurance. This reduces the back-to-back nature of such transactions, but as a consequence, increases basis risk for the bank. However, this is not the approach taken by the industry based on our meetings with market participants, and the standard approach seems to be to incorporate ISDA documentation.

Another risk that has been identified is the possibility of a liquidator of an insurance company seeking to argue that the company was engaging in a prohibited activity. This is most likely in circumstances where an insolvency event occurs shortly after a credit event.

The risk of recharacterisation has led some market participants to question the restrictions on insurers' involvement in non-insurance business including credit derivatives. Characterisation of a contract as a derivative – subject to requirements derived from EU Directives, see Annex C – or as an insurance contract, is seemingly becoming a tenuous distinction in practice. Regulatory requirements will, however, be significantly different depending on the characterisation of the contract. Recent market developments, in particular the fact that some credit derivatives contracts are apparently being linked to loss, is also shedding doubt about legal opinions relying on this difference to set the boundary between a credit derivative and an insurance contract.

The discussion mostly covers issues of relevance to contracts entered into under UK law. Equally, there might be issues relating to the characterisation of contracts entered into with foreign counterparties or under another jurisdiction's law.

## **Issues for us**

We are considering the publication of guidance in two areas directly relevant to the operation of alternative risk transfer strategies. The two areas are (i) the identification of contracts of insurance; and (ii) the scope of non-insurance business in which insurance firms may legitimately engage, under rule 1.3 of the *Interim Prudential Sourcebook* for insurers. It is not envisaged that this guidance will cover credit derivatives at this stage due to recent developments in the credit derivatives markets – in particular the existence of contracts explicitly linked to loss.

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<sup>9</sup> Credit Derivatives and Insurance – A World Apart, Maria Ross and Charlotte Davies, Norton Rose, International Securities Monthly, March 2001.

# Insurance regulations in relation to credit risk transfers

## Regulatory treatment of credit derivatives for insurance companies

The rules regarding the valuation of derivative contracts and assets having the effect of derivative contracts are set out in the Interim Prudential Sourcebook for insurers (rules 4.12 and 4.13 respectively). Rule 4.14 requires assets to be adjusted as per the value of these contracts. Derivative contracts – and assets having the effect of derivative contracts – are only recognised if they are held in connection with admissible assets (consistent with the overarching boundary requirements<sup>1</sup>), for the purposes of reduction of investment risks or efficient portfolio management.<sup>2</sup> There are a number of conditions restricting their use. Rule 5.3 requires a provision for adverse changes to be set aside for derivative contracts which are not strictly covered. Guidance note 4.2 gives further details of what constitutes an appropriate use of derivatives for admissibility purposes – in the case of linked funds, it may be illegal for the firm to use derivatives unless they meet all the requirements. The responsibility for setting the provision for adverse changes lies with the directors of the company; the guidance suggests that for an equity-linked derivative, it should replicate the impact of a 25 per cent adverse change in an equity index.

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1 This requirement is derived from the First Council Directive of 24 July 1973, on the coordination of laws, Regulations and administrative provisions relating to the taking-up and pursuit of the business of direct insurance other than life assurance (73/239/EEC; article 8.1(b)).

2 This requirement is derived from article 21.1.C(iv) of the Council Directive of 18 June 1992 on the coordination of laws, Regulations and administrative provisions relating to direct insurance other than life assurance and amending directives 73/239/EEC and 88/357/EEC (Third Non-Life Insurance Directive, 92/49/EEC).

## **Credit-linked assets**

Credit-linked notes pose an additional problem as they would normally be treated as quasi derivatives (i.e. a security plus a derivative), so subject to the treatment outlined above. However, if a special purpose vehicle is used, as is common, the treatment for the insurance investor in the SPV would be the same as for any other security, therefore subject to admissibility limits, but no specific requirement below the limit. The limit would depend on whether the SPV is listed (5 per cent of business amount) or unlisted (1 per cent). In other words, an insurance company could invest up to 5 per cent in a credit linked note and bear no explicit capital charge against that investment. The same treatment would apply for an investment in the tranche of a cash CDO.

However, in non-linked funds, for example where a life company is investing to match liabilities in respect of annuities or other guaranteed products, there are implicit capital charges. Life insurance companies need to build margins reflecting the investment assumptions used to calculate the liabilities – there is also an explicit solvency margin of 4 per cent, based on liabilities.

The margins in the investment assumptions relate directly to the matching asset, in this case the credit-linked note holding. If the holding has a gross redemption yield (derived from the underlying CLN portfolio) of 6 per cent and a credit rating of A then the margins are 2.5 per cent of the yield (i.e. 0.15 per cent pa) plus an allowance for risk. The allowance for risk is at the Appointed Actuary's discretion but guidance requires him to have regard to risk free yields and relative levels of marketability. The capital impact of these adjustments will depend on the term of the liabilities as well as actuarial judgement. Further, life insurance companies may be required to hold an additional implicit requirement if the projected risk-adjusted cash flows from investments do not accurately match the projected liability cash flows (resilience requirement). So, while there is no explicit capital requirement against life insurers' holdings in credit-linked notes (or CDOs), there are implicit requirements related to the riskiness of the holding – and matching of the liabilities.

## **Regulatory treatment of credit insurance**

Credit insurance is recognised as a separate authorisation category (class 14) by EU directives. In addition to other general insurance requirements – including the solvency margin requirement and technical provisions – additional reserves, so-called 'equalisation reserves' must be set against class 14 business. Under UK implementation, the equalisation reserve for credit insurance business must be set at 75 per cent of the technical surplus arising on credit insurance business. These additional reserves reflect concerns over

the volatility of credit insurance business. Equalisation reserves do not apply if credit insurance business is under 4 per cent of the business amount of the firm.

Equalisation reserves need not be set against classes 15 & 16 business; class 15 'surety' and class 16 'miscellaneous financial loss' are however authorisation classes which may encompass some types of credit risk transfer business. All three classes are reported under the heading of accounting class 8 business, or 'miscellaneous and pecuniary loss'. Firms further report their activities under 'risk classes' – but these are non-standard, and the wide range of activities reported under these headings makes it difficult to distinguish insurance of financial instruments. So, despite extensive disclosure requirements for insurance companies, it is difficult to ascertain the involvement of firms in credit risk transfers from the regulatory reports available.

## **Reinsurance regulation**

There is a wide spectrum of reinsurance regulation globally. Even within the confines of the EU, there is a wide variety of authorisation and licensing approaches. In the UK, reinsurers undergo the same authorisation process as primary insurers and are subject to the same prudential requirements, although they would be expected to have a higher capitalisation. Supervisory approaches range from:

- direct supervision of reinsurers in the same way as primary insurers (for example UK and Denmark);
- indirect supervision, i.e. of primary insurers' reinsurance arrangements (for example Germany); and
- no oversight (for example Greece).

Reinsurers operating in the US are regulated in the same manner as primary insurers. There is a licensing and an authorisation process. Licensed entities fall into one of three categories depending on the jurisdiction in which the company is domiciled in relation to the State granting the licence: domestic (same state); foreign (different state); and alien (non-US). However, it is not necessary to be licensed to operate in a state: the key factor is to become authorised.

The IAIS has progressed to develop a standard on the indirect supervision of reinsurers<sup>3</sup> and a Principles Paper on their direct supervision.<sup>4</sup> In addition, the Reinsurance Sub-Committee of the European Commission Insurance Committee is working towards a draft directive on the supervision of reinsurers. The proposal will be put to Council and Parliament in late 2002-early 2003.

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3 *'Supervisory Standard on the Evaluation of the Reinsurance Cover of Primary Insurers and the Security of their Reinsurers'*, adopted at the IAIS General Meeting in Tokyo, January 2002.

4 *'Principles on Minimum Requirements for Supervision of Reinsurers'*, currently tabled for adoption at the IAIS General Meeting in Tokyo, January 2002.

# Banking treatment of credit risk transfers

## **Treatment of credit derivatives in the banking book**

The treatment of credit risk at banks is measured against risk-weighted assets. The risk weighting of all corporate exposures (including claims on insurance companies) is 100 per cent of the notional amount of the exposure. Some categories of assets, such as residential mortgages, benefit from a lower risk-weight (currently 50 per cent). The capital requirement on the asset portfolio of banks is calculated as a capital ratio (minimum 8 per cent) times the risk-weighted assets. In this section, the minimum 8 per cent capital requirement is used for ease of reference. But it should be noted that UK banks are subject to a variable capital requirement which will reflect their individual characteristics and will be higher than the basic 8 per cent charge.

So all corporate debt is subject to a minimum 8 per cent capital charge. This treatment gives rise to differences between the level of economic and regulatory capital for particular transactions, which may encourage regulatory arbitrage. In particular, the current framework gives banks incentives to free up regulatory capital by transferring highly-rated risk.

The current treatment of credit derivatives was derived by analogy to the treatment of guarantees; a guaranteed exposure is risk-weighted by reference to the risk-weight of the guarantor instead of the underlying asset. So, if a bank buys protection from an OECD bank or investment firm (a 20 per cent-weighted counterparty under banking rules) using a credit default swap, it is allowed to substitute the risk-weight of the underlying asset for that of the protection seller (the charge will be reduced from 8 per cent to 1.6 per cent). If the protection seller is an insurance entity, the risk-weight will not be reduced under the current Basel Accord (BIS 1) because insurance companies attract a 100 per cent risk-weight. This is illustrated in Box 3.

The current Accord was not designed with credit derivatives in mind. Regulators around the world have had to design new rules to take account of

the development of the credit derivatives market; they are also facing new challenges as the structures become increasingly complex.

The continuing review of the treatment of credit risk in banking (BIS 2) will modify these incentives as the counterparty risk charges will become more risk-sensitive. There may be new incentives to transfer low-rated risk or to buy protection from highly-rated insurers. Under the standardised approach, the capital charge on corporate exposures will be a function of the external rating of the underlying asset. More advanced approaches will be available to banks with more sophisticated internal measures of probability of defaults and recovery rates, subject to supervisory approval. The Basel Committee determined that more advanced credit modelling techniques will not, at this time, be recognised for capital-setting purposes, as the committee remained unconvinced of the robustness of these models.

### Box 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 the standard approach in BIS 2, the risk-weights are related to the external ratings of the counterparties.

Scenarios under BIS 1	Notional	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	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%*	x 8%	\$160,000 or \$400,000
A holds X and buys protection from IC	\$10M	20%	x 8%	\$160,000

\* 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. Each supervisor will need to implement one of the options to the exclusion of the other.

## **Treatment of portfolio credit derivatives – banking versus trading book**

As the credit derivatives market has developed, it has increasingly challenged the regulatory framework's ability to capture these bespoke structures. Credit derivatives effectively possess many of the features of traded instruments but deal with what is essentially perceived to be pure credit risk. An obvious question therefore is whether the structures meet the requirements for eligibility in the trading book. The regulatory treatment of synthetic securitisations has been the subject of much discussion in the Review of the Basel Accord. However, the treatment of tranching portfolio credit derivatives in the trading book is not within the scope of the current Review.

The boundary between structures that fall in the banking book and the trading book is difficult to enforce; the bespoke nature of the transactions often requires a case-by-case analysis of the transaction to determine whether a particular structure meets the criteria for eligibility in the trading book. Issues to be considered would include: is it possible to mark-to-market the position? Is there an intention to trade? Is the transaction structured to take advantage of short-term price movements or to lock in arbitrage profit? What is the nature of the reference assets? Our current policy allows credit derivatives in the trading book which are referenced to relatively illiquid assets such as loans. However, firms must make an appropriate reserve and we can require a substantial capital buffer to be held against uncertainty in valuation. At present, firms have to agree a trading book statement with their supervisors; as a result we can monitor the instruments that fall within the banking or traded book.

The basic trading book treatment of credit default swaps is made up of a specific risk charge (reflecting the spread risk of the underlying asset) plus a counterparty risk charge reflecting the potential future counterparty exposure. The general market risk (reflecting variations in the underlying due to general market movement) resides with the holder of the underlying asset.

The growth of portfolio credit default swaps has led to additional issues for regulators, in particular with respect to the treatment of tranches. The treatment of individual transactions is agreed with firms under individual guidance. We have undertaken a recent project on portfolio credit derivatives, to develop more risk-sensitive solutions for the treatment of portfolio credit derivatives in the trading book, but it has proved difficult to come up with a solution which complies with the Capital Adequacy Directive. Work is about to start again: while there is a desire to achieve an interim solution domestically, this may not result in level playing field unless the trading book treatment of these products is reviewed in Basel or the EU.

A highly stylised example of a trading book credit derivative transaction and its regulatory treatment is shown in Box 4. It should be interpreted with caution, as the actual capital charge may be higher to reflect uncertainties of valuation, and a number of simplifying assumptions have been made, both in respect of the effectiveness of the hedge and the treatment of other cash flows arising from the transaction. With these warnings in mind, it should be noted that the intermediation of an investment firm between a bank and an offshore or unregulated insurer/reinsurer could lead to a decrease in the level of capital required to support the underlying credit risk.

#### Box 4: Regulatory treatment of a credit derivative transaction hedged in the trading book

A bank with a £10m investment grade corporate exposure enters into a five-year credit default swap with an investment firm or a bank (a 20% risk-weighted counterparty) who takes the transaction in its trading book and hedges it out to an unregulated counterparty.

##### BANK

Position risk	= notional * risk weight * 8%
Unhedged position	= £10m * 100% * 8% = £800,000
Hedged position	= £1bn * 20% * 8% = £160,000

##### INVESTMENT FIRM

The position is taken in the trading book and hedged out to another counterparty so, SR, the specific risk, will cancel out. GMR, the general market risk, stays with the originator. There will be additional capital charges to capture the counterparty risk on the premiums, which have been ignored in this example. Moreover, it is assumed that the replacement value of the contract is zero.

The counterparty risk charge is calculated as  $CPCOM = CEA * CPW * 8\%$

Where  $CPCOM$  = firm's counterparty risk capital component

$CPW$  = counterparty risk weight (capped to 50% for OTC derivatives)

$CEA$  = credit equivalent amount =  $A + PFCE$

where  $A$  = replacement value (i.e. mark to market), and

$PFCE$  = potential future credit exposure (  $[*]$  of  $N$ )

where  $N$  = notional,

$[*]$  = a multiplier which varies according to the maturity and grade of underlying (investment grade 5 years = 1.5%; a non-investment grade asset would attract 10%)

Capital charge	= $SR + GMR + CPCOM$
Hedged	= $0 + 0 + (0 + \$10m * 1.5%) * 50% * 8%$ = \$6000

##### OVERALL EFFECT

The transaction has resulted in an effective reduction in regulatory capital from £800,000 to £166,000 (Bank's Capital – £160,000 + Investment Firm's Capital – £6,000).

If the investment firm had hedged out to another regulated counterparty, that counterparty would need to set regulatory capital against the risk; this would add to the overall level of regulatory capital.

# Comparison of the treatment of credit risk under banking and insurance regulations

This annex shows a simple worked example to illustrate the way the present and future Accord responds 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. In making this comparison, several simplifying assumptions were 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 per cent margin for risk and profit; no account is taken of the recovery value of the exposure;
- 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 per cent of the difference between premiums and claims reserves;
- d) No provision has been made against 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;
- e) For reasons of simplification, option 2 in the BIS 2 public consultation is used to determine the applicable risk weight for banks – this is based on the external rating of the bank itself.<sup>1</sup> Again, for simplification purposes, no operational risk charge has been assumed.

Given these highly simplified assumptions, it is not possible to derive conclusions about the scale of the differences due to the different regimes. But it is possible to get a sense of their relative response to an increase in the credit risk of an exposure.

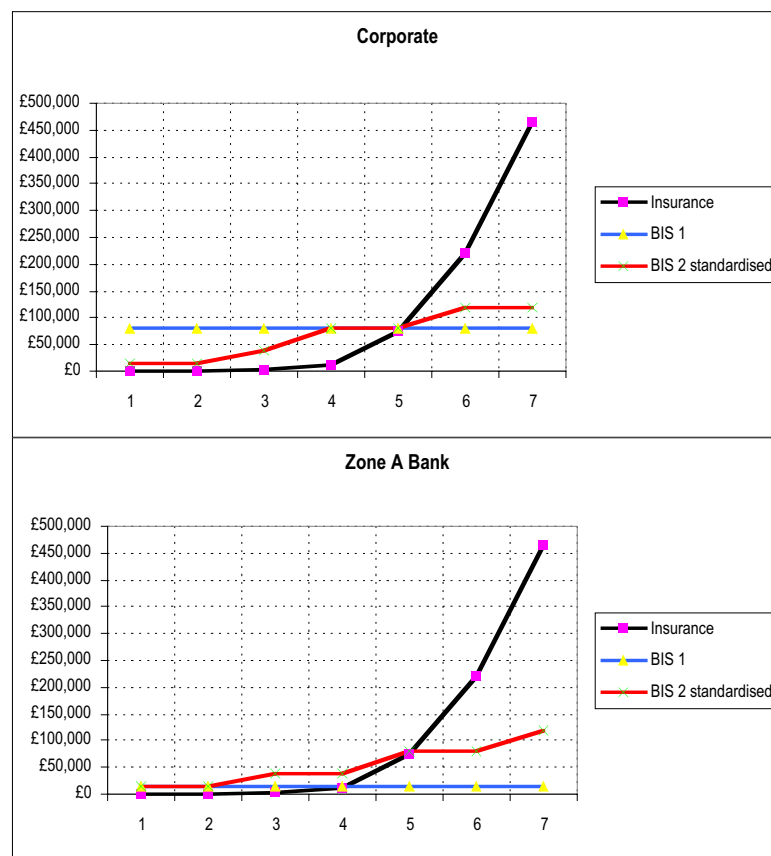
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<sup>1</sup> According to option 1, the risk weighting would depend on the country of incorporation of the bank instead. For implementation purposes, each country will have to choose one of the two options.

The current Basel approach is not sensitive to the risk of the underlying asset and it is therefore difficult to make meaningful comparisons with the insurance regime. It is perhaps more interesting to compare the BIS2 proposals with the current insurance rules. The simulations suggest 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 which will vary between countries and indeed firms. For this reason, supervisory scrutiny of provisions tends to form a significant element of insurance supervisory activity. The solvency requirement itself, although a small proportion of the implied prudence, is based on a premiums basis – underpricing would therefore result in a lower charge.

The horizontal axis represents seven ratings categories, with implied probabilities of default as set out in the table below.

	1	2	3	4	5	6	7
Rating	AAA	AA	A	BBB	BB	B	CCC
Default rate <sup>2</sup>	0.03%	0.08%	0.24%	0.99%	6.14%	18.25%	38.40%



2 For simplification purposes, we have used the global three-year cumulative corporate default rates published by Standard & Poor's in 'Special Report: Ratings Performance 2001', February 2002 (cf. Table 2 of the report). The sample excludes certain categories of issuers, for example sovereign and structured financings issuers.

### Credit risk transfers – summary of the risks to our objectives

Risk definition	RT0 affected	Current Assessment
Lack of senior management oversight in insurance companies	1, 2, 8, 9	Meetings with firms indicated that the extent of management oversight of credit risk transfer activities varies – although the materiality of these activities is relevant to this assessment. There were also some questions on the extent of delegation from the top level of the companies. Other companies appeared to have strong approval processes in place.
Poor credit risk management systems in insurance companies – Poor credit assessment systems – Lack of proper aggregation systems	1, 2, 8, 9	Meetings with firms suggested that the majority of insurance companies which have become involved on a significant scale have a sophisticated attitude to credit risk and would cherry-pick credits, as well as reject a significant number of deals on offer. Some firms also have aggregation systems to capture concentrations in their investment and underwriting activities. However, the majority of companies appeared to lack processes that would permit a more holistic view of investment and underwriting activities.
Poor risk management in banks	1,2, 8,9	Banks appear to have strong counterparty management systems in place, and mitigate counterparty risk using different means (for example collateral). However, some of the recent events appear to have caught banks unaware, which could highlight earlier failures in assessing counterparty exposures.
Lack of effective risk transfer	1,2, 8,9	By retaining the first loss in many deals, banks retain much of the risk in portfolio structures. Likewise, if the counterparty to the first loss layer is unable/unwilling to meet its obligations, the banks have not truly transferred the risk. It is not clear how much senior management awareness there is of this risk. In traded deals, where a bank/investment bank acts as an intermediary, there are also risks in warehousing underlyings. Moreover, banks may be exposed to basis risk because the protection bought does not match the asset for which protection is sought.
Poor operational risk controls – Recharacterisation risk – Documentation risk (the documentation fails to provide desired protection)	4, 11,5	The legal risk involved in these markets is significant but most market participants seem well aware of these risks, and seek internal and external legal advice when structuring the transactions. But certain structures (for example transformers) are untested. Documentation issues are often well-publicised and companies currently try to act collectively through trade associations to resolve issues of common interest.
Liquidity risk	1,2,8,9	Credit derivatives are a fairly new innovation and liquidity is lacking in certain segments. This is particularly true of the more junior tranches of structured transactions.

Risk definition	RTO affected	Current Assessment
Lack of transparency	4,5,11	The transfer of credit risk across the system makes it more difficult to assess where the risk ends up and the absence of established markets or price screens mean that this is an opaque and illiquid market. The extensive use of offshore centres also contributes to the lack of transparency.
Absence of regulation in the reinsurance market	1,5,8	Reinsurers represent major counterparties in the credit risk transfer area. But they are also subject to little or no regulatory scrutiny in some countries. Although many are highly capitalised groups, and subject to due diligence by the risk transferors, the absence of direct supervision of these groups is a significant concern.
Inadequacy of reporting to the regulator		The difficulties the project team faced in assessing the amount and type of credit risk transfers underwritten by insurance participants highlight shortcomings in the reporting framework. The process was hampered by the different authorisation and accounting classes. It is difficult to assess the riskiness of insurance companies' investment portfolios – in particular, the proportion of structured transactions in the portfolio.
Regulatory arbitrage across 'industries'	1,2,5,8,9	<p>Potential arbitrage opportunities arise from:</p> <ul style="list-style-type: none"> <li>– lack of risk-sensitivity of the current Basel Accord with respect to banking book exposures;</li> <li>– differences between the treatment of credit risk in the banking and traded book;</li> <li>– differences in the treatment of credit protection in banks and insurance companies;</li> <li>– the provisioning policies of insurance companies, which constitute the most significant portion of the built-in prudence, are linked closely to accounting rules which will vary between countries and indeed firms</li> <li>– the absence of explicit capital requirements on insurance companies' investments;</li> <li>– accounting differences.</li> </ul>

Risk definition	RTO affected	Current Assessment
Regulatory arbitrage within groups, resulting in a decrease in regulatory capital of the firm	1,2,8,9,5	Some UK groups may be looking at the potential to book transactions in different parts of the group, although the project gathered little evidence of these transactions. However, many of the insurance groups involved in credit risk transfers use investment arms to acquire the business, and back-to-back the transactions to their parents. The potential for this highlights the need for group-wide supervision of financial conglomerates internationally – including scrutiny of intra-group transactions.
Credit deterioration in the economy	1,8	A deterioration of credit quality in the economy would cause many of the risks outlined above to crystallise – with potential increases in legal disputes and potential failures of firms as a result of losses. But the impact of credit risk transfers is likely to be minimal compared to the wider impact of a severe market deterioration on the banking sector.  In the insurance sector, further credit deterioration could lead to losses among some firms – both underwriters of the risk and investors in the risk.

#### KEYS TO THE RISKS TO THE OBJECTIVES (RTOS)

##### MARKET CONFIDENCE

1. *Financial failure, including contagious or parallel failures, that damages confidence in the financial system, a significant sector or the regulatory regime*
2. *Widespread misconduct by firms or mismanagement of firms of a nature or scale that damages confidence in the financial system, a significant sector or the regulatory regime*
3. *Financial crime of a nature or scale that damages confidence in the financial system, a significant sector or the regulatory regime*
4. *Market malfunction of a nature or scale that damages confidence in the financial system, a significant sector or the regulatory regime*
5. *Unwarranted loss of confidence in the financial system, a significant sector or the regulatory regime, due to lack of understanding of what the regulator can and cannot achieve*

##### PUBLIC AWARENESS

6. *General financial literacy of the public is inadequate (irrespective of direct and immediate implications for financial gain or loss)*
7. *Inadequate understanding by consumers of specific products or services, preventing informed decision making (irrespective of direct and immediate implications for financial gain or loss)*

##### CONSUMER PROTECTION

8. *Consumer loss, including opportunity loss, arising from financial failure including contagious or parallel failures, of firms*
9. *Current and post purchase consumer loss, including opportunity loss, resulting from misconduct by firms or mismanagement of firms*
10. *Current and post purchase consumer loss, including opportunity loss, resulting from market abuse*
11. *Consumer loss, including opportunity loss, resulting from market malfunction*
12. *Consumer loss, including opportunity loss, resulting from inadequate understanding by consumers of specific products or services, preventing informed decision making*

##### FINANCIAL CRIME

13. *Incidence of fraud or dishonesty (irrespective of resulting direct losses)*
14. *Incidence of misconduct in, or misuse of information relating to, a financial market (irrespective of resulting direct losses)*
15. *Incidence of handling the proceeds of crime (irrespective of resulting direct losses)*



# USAA cat bond issues

The USAA/Residential Re structure<sup>1</sup> has become a template for several subsequent transactions. The initial deal was struck in 1997, providing one year cover. It has subsequently been renewed three times, on an annual basis, albeit on slightly different terms. These reflect increasing investor sophistication and the nature and amount of risk that USAA wished to reinsure.

Residential Reinsurance Limited was designed to help manage USAA's financial exposure to large hurricanes. It is a special purpose reinsurance company, and was set up under the laws of the Cayman Islands. Residential Re provides USAA with reinsurance cover and is responsible for the issuance of the notes.

The reinsurance policy issued by Residential Re provided USAA with an excess-of-loss cover tied to a single hurricane occurrence during the one-year reinsurance period. USAA receives cover in respect of 80 per cent of \$500 million (i.e. \$400 million) of its aggregate insured losses if they exceed \$1 billion from a single hurricane (defined as a category 3, 4 or 5 storm on the Saffir-Simpson index) in 20 Eastern Seaboard states of the US. USAA, therefore, has a 20 per cent pro-rata position and its share of a \$1.1 billion loss, for example, would be \$220 million. The limited capacity within the traditional reinsurance market for this category of risk is believed to have been the driver for USAA undertaking the transaction.

The \$477m of 144A notes were offered in two tranches/ classes

- (i) Class A-1 notes (\$164m) where interest payments on the notes is at risk, were priced at one-month LIBOR plus 273 basis points. The principal on the Class A-1 notes is backed by 10-year zero coupon bonds. A noteholder, though, faces an extendible risk on the principal. In other

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<sup>1</sup> 'Securitisation of Insurance Risk' by Laurenzano and Latza of Stroock and Stroock and Lavan LLP NY.

words, if the loss is greater than \$1.5 billion, Class A-1 noteholders will realise their full principal, but in 2008.

- (ii) Class A-2 notes (\$313m) where principal and interest are at risk, were priced at one-month LIBOR plus 576 basis points.

The probability of an event having any impact on the notes' principal is 1 per cent while there is a 0.4 percent chance that an event would completely reduce an investor's principal.

Duff & Phelps, Fitch, Moody's and Standard & Poor's rated the notes. The Class-1 notes were AAA while the Class-2 notes were rated BB (S & P).

Residential Reinsurance Limited sold its notes to a group of private investors through a private placement. The offering's syndicate managers were Merrill Lynch & Co., Goldman Sachs & Co. and Lehman Bros. According to USAA, the final offering was "two times oversubscribed".

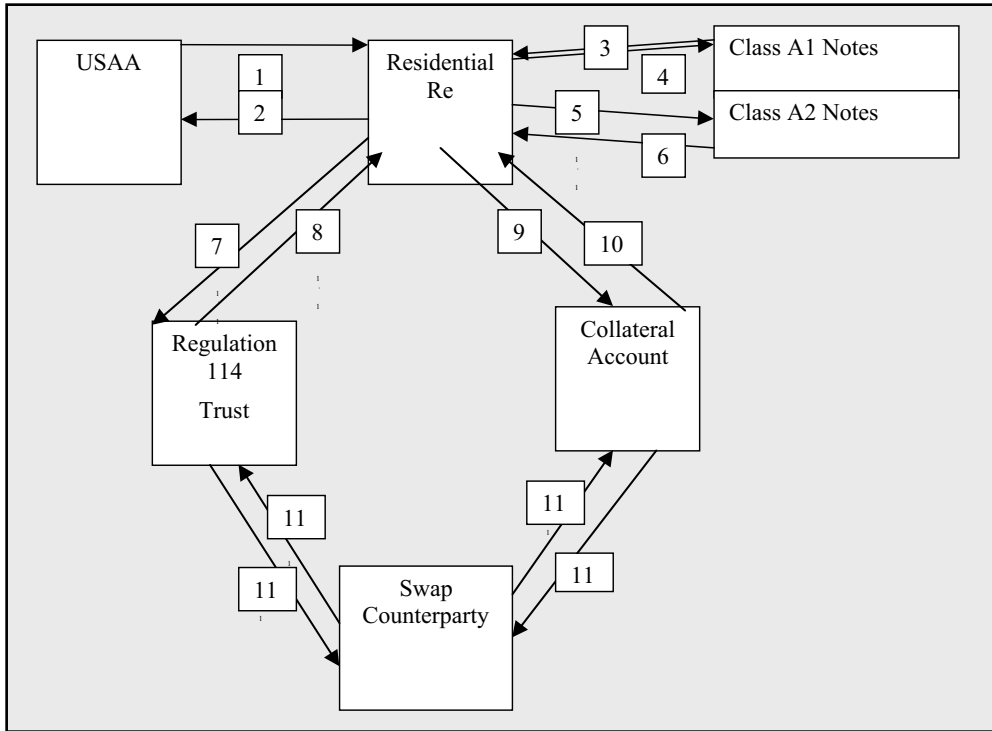
\$400m of the proceeds of that sale were segregated into a Regulation 114 trust<sup>2</sup> and invested in commercial paper. The balance of \$77m was invested in zero-coupons with a minimum maturity equal to the principal of A-1 notes.

Swap agreements converted interest on the trust assets to a LIBOR basis to make scheduled payments on the notes. In the event of a loss greater than \$1 billion, A2 noteholders would lose interest and principal, A1 noteholders would have lost their interest but would receive their principal when the zero coupons mature in 2008.

The net cost of the deal to USAA was 6 per cent rate on line, plus fees. This reportedly compares favourably to the cost of comparable reinsurance coverage, which at the time was available for about a 7 percent rate on line. According to Robert Herres, CEO of USAA, "Given the current state of the overall reinsurance market, this is the optimal mix of coverage for the association in the event of a major hurricane. The reinsurance contract acquired from Residential Reinsurance adds to reinsurance from our traditional sources to give USAA strong diversification of exposure and, so, enhanced protection for our members."

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2 This permits USAA to take credit in their financial statements for unauthorised reinsurance.



- 1 Premium paid by USAA to Residential Re (600bp)
- 2 Event Contingent Claims payment from Residential Re to USAA of upto \$400m
- 3 Payment from Class A1 note holders to Residential Re of \$164m
- 4 Payment from Residential Re to Class A1 note holders of LIBOR + 273bp plus \$164m at maturity
- 5 Payment from Class A2 note holders to Residential Re of \$313m
- 6 Payment from Residential Re to Class A2 note holders of LIBOR + 576bp plus upto \$313m at redemption
- 7 Transfer from Residential Re to Regulation 114 Trust of \$400m
- 8 Payment from Regulation 114 Trust to Residential Re of LIBOR plus any event contingent remaining funds
- 9 Transfer from Residential Re to Collateral Account of \$77m
- 10 Payment from Collateral Account to Residential Re of LIBOR plus \$77m at maturity
- 11 Transfer of investment earnings from Regulation 114 Trust and Collateral Account to Swap Counterparty in return for LIBOR based return



### Insurance risk transfers – summary of the risks to our objectives

Risk definition	RTO(s) affected	Assessment
Lack of senior management oversight	1,8	The esoteric nature of these transactions at present means that senior management approval is likely to be required for each transaction. The firms involved also tend to publicise their involvement.
Inadequate systems and controls – Poor risk assessment systems – Lack of proper aggregation systems	1,8	The nature of the risks insured is such that only some specialist funds invest in cat bonds. Non-insurance specialists rely on specialist expertise, ranging from modelling and rating agencies, and other insurance advisers. Investment banks have found it difficult to educate less sophisticated investors about cat bonds.  Insurance companies, especially reinsurance companies, may be involved in both an underwriting and investment capacity. However, they would appear to take these concentrations into account (to the extent that cat bond investments tend to be one-off activities).
Basis risk in non-indemnity structures	1,2	Issuers face a significant basis risk in parametric trigger structures and could find that their actual exposures are significantly different from the payout which they receive. It was mentioned that models may deviate significantly from actual losses.
Liquidity risk	1,8	The lack of an active secondary market exposes investors to liquidity risk (they may not be able to sell off the exposure). However, few investors have significant exposures at present.
Poor operational risk controls – Legal risk – Documentation	4,11,5	Lawyers give opinions on all transactions. There is potentially a boundary issue in indemnity structures – does the transaction constitute insurance or investment business. The use of parametric triggers is providing some comfort to investors and also reduces the uncertainty of payout. Documentation issues may be less than in other reinsurance contracts due to strict capital markets' disclosure requirements.
Unregulated nature of the market	4,5,11	Most of the transactions involve an offshore vehicle or/and a reinsurer, which may or may not be regulated.
Major catastrophic event	1, 8	Customers of funds which have invested in these cat structures may be exposed to significant losses following a catastrophe. Unlike traditional reinsurance, where the main impact would be on professionals, there may be direct losses to the fund and its customers.

Keys to the RTOs (see Annex F).

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