

RISK TRANSFER MECHANISMS: CONVERGING INSURANCE, CREDIT AND CAPITAL MARKETS*

The purpose of the following article is to give a descriptive overview of the market for risk transfer markets focusing on the growing inter-linkages between different financial sub-sectors such as banking and insurance. For the OECD, developments in transfer risk markets are an area of particular interest as they represent cutting-edge technology of financial markets in recent years. Furthermore they represent one of the areas in focus following the large-scale uncertainties in the aftermath of September 11, collapse of Enron and default in Argentina¹.

The paper contains five main sections. The first, introductory section motivates the interest for analysing the developments of markets, including the limitations of the study. The second section gives a description of the markets for risk transfer focusing on the outstanding amounts and players active in markets. In section three a range of factors is listed, all of which underpin the development of risk transfer markets. The fourth section focuses on wider financial stability issues with a special focus on supervisory and regulatory issues. The fifth and final section comprises some concluding remarks and raises issues for further discussion.

I. Introduction and summary

Sophisticated securitisation methods to transform cashflows have expanded the scope for risk management practices in financial companies to a level where risk embedded in typical financial sector products such as corporate bonds, commercial loans and insurance can be repackaged into financial market securities. Many financial institutions and institutional investors have now become familiar with these tools (credit - and insurance - linked securities),

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which shed risks from financial institution's balance sheets and transfer them via capital markets to institutional investors.

Some of these mechanisms -- credit derivatives -- have been developed to address credit risks in corporate bonds and bank loans whilst others, such as alternative risk transfer products and catastrophe bonds, are specially designed to address insurance risks. As a by-product from growth in risk transfer markets, greater inter-dependence between banks and insurance companies may have emerged thus bridging the two financial sectors and financial markets. Banks are shifting credit risks from their balance sheets to insurance companies, amongst others, and insurance companies are issuing catastrophe bonds that are being sold to institutional investors such as investment funds and other end-investors. With higher activity in risk transfer markets, financial market participants with traditional business lines could assume completely different roles as "virtual insurers" or "virtual bankers".

In particular, the non-standardised products used by market participants such as credit derivatives and catastrophe bonds would be at the core of this analysis. More traditional financial products, i.e. mortgage back securities and traditional derivative products accounting for a larger part of the financial sectors activity would be only part of the analysis to the extent that they impose special risks in either banks or insurance companies².

Bridging individual financial sector institutions has been part of the financial sector landscape for some time with bancassurance groups being the most visible sign. Whereas bancassurance groups create visible interrelations, risk transfer markets create interdependencies that are less transparent, which makes the tracking of counterparty exposures a challenging task. Using risk transfer markets has, however, theoretical appeal as institutions from which contracts and claims originate are not necessarily the institutions best suited to warehouse them. Therefore, in principle, risk transfer markets can improve dispersion of risks by making the pool of unsystematic risk -- idiosyncratic risk that can be eliminated by appropriate diversification -- larger, thus potentially limiting individual institutions' exposures to specific risk related to geography, sector and size.

Although risk transfer markets have the potential to enhance financial stability by diffusing exposures, there are concerns that they may equally lead to more concentrated and non-transparent risks. Especially, the fact that a limited number of key players hold a high market share has been mentioned as a cause for concern. Furthermore, on the demand side, market participants can be taking excessive risks in areas where they have less expertise in terms of management and pricing of risks. On the supply side, risk transfer markets offer financial

companies opportunities to hedge risks that did not exist before, however, these instruments are also challenging as they involve new counterparty risks. While these negative effects are hypothetical and do not necessarily materialise, greater interdependence between financial market participants would certainly raise challenges for authorities in tracking exposures and in avoiding regulatory arbitrage.

Following the large-scale uncertainties surrounding financial market in 2001 authorities have expanded oversight with the functioning of risk transfer markets. Regulators and supervisors have been particularly concerned with the fact that markets had grown very rapidly and not yet been tested during an economic slowdown. Recent default events such as the collapse of Enron, default in Argentina and other large corporate bankruptcies in the wake of the economic slowdown have provided an important test for risk transfer markets. Although the first observations indicate that markets for risk transfers have remained fairly resilient to the fallout and avoided systemic implications, there is still some wariness regarding the risk going forward. This was indicated on the latest Banana Skin list -- a survey of the risks facing banks -- where complex financial instruments such as risk transfer mechanism is one of the factors that has been racing up the league of perceived big risks for banks and is now regarded as the fourth largest risk factor among financial market participants³.

II. Overview of risk transfer markets – structural trends and market participants

The interest among financial institutions to undertake cross-sectoral risk transfers is not a new trend as taking risks have long been an integrated element of financial companies operations. As a matter of fact, mutual exposures between financial sectors have existed in a number of areas, often leading to non-intentional or indirect risk transfers between different institutions⁴.

The traditional range of risk transfer methods has, however, in recent decades been expanded with new techniques leading to far more growth in more direct risk transfer markets. In particular, new methods have been developed to address risks stemming from credit or insurance activity so as to unload these traditional balance sheet activities into financial market securities sold to investors. As regards the instruments used to make risk transfer of credit and insurance risk, they mainly include securitisation, credit derivatives, and alternative risk transfer. Risk transfer mechanisms thus comprise a wide group of financial instruments used to transfer risks to another party either in the form of borrowers defaulting on their debt (credit-linked securities) or the risk of a

catastrophe occurring (insurance-linked securities). In the following the distinction would be made between credit- and insurance-linked securities.

Credit-linked securities (credit derivatives)

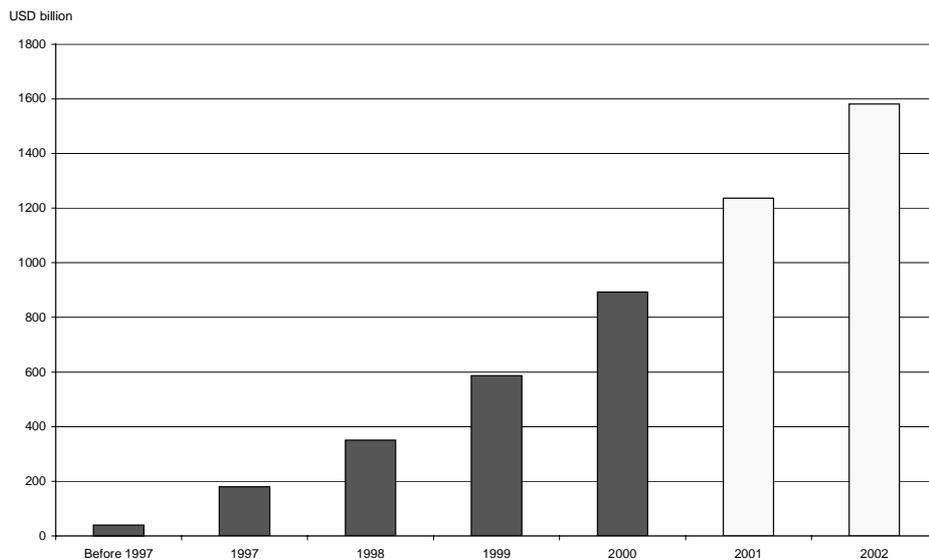
Markets for credit risk transfer have been around for some time: banks have been using syndicated loan markets to spread out credit risks; and insurance companies have been acquiring exposures to credit risk as part of their normal investment activities. The evolution of credit-linked securities has, however, catalysed the market as transactions can be made more smoothly which enlarge the scope of application to cover a wider range of issuers. More importantly, credit-linked securities have expanded the investor segment to include a wider range of institutional investors.

Basically, credit-linked securities are financial instruments that strip out and isolate credit risk on underlying assets -- as apart from other risks -- and transfer only the credit risk to another party. These instruments combine various aspects of existing financial structures, such as swap contracts or pooled securities, but are tailor-made to address credit risk embedded in commercial loans and corporate bonds. Transactions can be ramped in different forms, but the basic element -- providing insurance like protection from the risk of default -- remains a significant element. To simplify often very technical constructions, they basically involve two parties: one party (the protection seller) receives a premium from another party (the protection buyer) for assuming the credit risk of an entity. In return for the premium, the protection buyer receives a payment from the seller in the event of the specified entity is undergoing a credit incident.

The market for credit derivatives -- here used as synonymous for credit-linked securities -- has grown significantly since the mid-1990s with the growth in the past few years being particularly rapid. In a survey from the British Bankers Association⁵, it is estimated that notional principle value of credit derivatives has almost doubled from about USD 600 billion in 1999 to approximately USD 1200 billion in 2001 (figure 1). In comparison with underlying assets of global corporate bonds and bank lending, the trend looks less elevated. According to analysts, markets for credit derivatives could expand much further and follow a pattern seen in other derivative markets such as interest derivative markets, representing about 250 per cent of the outstanding global amount of government bonds. As regards future developments, market participants expect risk transfer markets to continue growing with notional amounts to surpass USD 1,5 trillion in 2002. In another survey on derivative market activity, the Bank for International Settlements (BIS) found fairly lower outstanding amounts citing

positions in credit derivative at end-June 1998 and 2001 to be respectively USD 108 billion and USD 693 billion. As reported in the BIS survey, different approaches have been applied in the compilations, which could explain the sizeable variations⁶.

Figure 1. Outstanding notional amounts of credit derivatives



Source: British Bankers Associations

Note: Figures for 2001 and 2002 are estimates

Following the events of 11 September and the global economic slowdown in 2001, transfer risk markets and in particular credit derivatives have been impacted negatively. The general deteriorating corporate credit quality, highlighted by downgrades of company ratings as well as higher defaults levels, bringing them to levels pertaining in 1991, has led to credit losses among investors in credit-linked securities, as protection buyers have been exercising the option embedded in their credit protection.

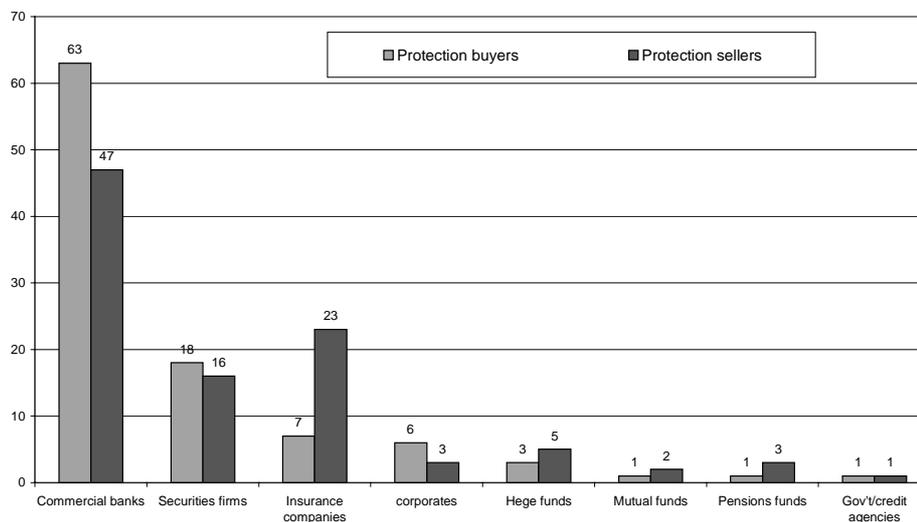
Against the backdrop of credit derivatives' negative performance, market growth has abated though continued to expand with lower pace. Notwithstanding the slowdown and negative sentiment, market analysts and commentators expect that opportunistic investors will continue to use credit derivatives to exploit dislocations in capital markets⁷. Underpinning this expectation is the fact that opportunistic investors in the wake of 11 September and despite financial market volatility have sustained their interest in credit-linked security markets.

There exists no standard definition of credit derivatives and market players in surveys have often underlined different important features related to these instruments. One reason for the lack of standardisation has been the fact that many credit risk transfer transactions have been structured to meet unique demands. Furthermore, with a large amount of deals issued prior to the introduction of standardised ISDA documentation in 1999 and its amendments in 2000, the platform (legal documentation) underlying these early transactions was largely discretionary. There are basically two sorts of transactions issued to financial markets with one refers to single name credits and the other refers to a portfolio of names. The former category basically is a swap with one specific corporate borrower as the underlying reference, whereas the latter method pools a selection of credits leading to a broader pool. The vast majority of deals (40 per cent) have been made with single names, although the portfolio basis is gaining in popularity and now accounts for almost a quarter of the market.⁸

Trading in the single name area has involved in up to 2000 corporate names of which some 500 to 1000 corporate names have actively been traded. By contrast, trading in single name sovereigns are typically more liquid, although limited to a small range of mostly emerging market economies⁹. In the context of underlying assets, 20 per cent of reference entities were sovereigns and 80 per cent corporate names. Demand for sovereigns typically comes from banks or investors interested in supplying credit to borrowers based in those countries but limited by risk management guidelines setting limits for geographic exposures.

As regards participants in credit-linked security markets, all types of financial sector companies are well represented, acting both as sellers and buyers of credit-linked securities. Commercial banks and in particular a few of largest global banks have so far been the largest amongst active players both as buyers and sellers of credit protection (figure 2). Although active on both sides, commercial banks are primarily net buyers of protection -- accounting for a little above 60 per cent of the protection buying and 40 per cent of protection selling -- which makes sense considering banks have large loan portfolios. Some banks participate in the credit-linked markets mostly as intermediaries, where brokerage units enter into back-to-back credit derivative transactions leading to a neutral risk position, as in the case of individual credits where brokers match up buyers and sellers of credit protection and earn a bid-ask spread, taking only limited if any credit risk.

Figure 2. Market participants in the markets for credit derivatives (market share in per cent)



Source: British Bankers Associations
 Note: End-1999 observations

Insurance companies have developed into one of the more aggressive market participants in the credit derivatives market, most notably as net sellers of credit protection, playing a significant role in the secular shift in risk transfer markets. Their activity in the markets can be viewed as a natural extension of their traditional activity of risk assumption replacing insurance with credit risk. The increased appetite for transfer risk markets is evident from the fact that insurance companies' credit protection sales represented 10 per cent of the total sales at end-1997, but increased to 23 per cent by end-1999, and this share is expected to increase to 26 per cent by year-end 2002. The market share of 20-25 per cent would equate to around USD 300-400 billion of notional principal outstanding.

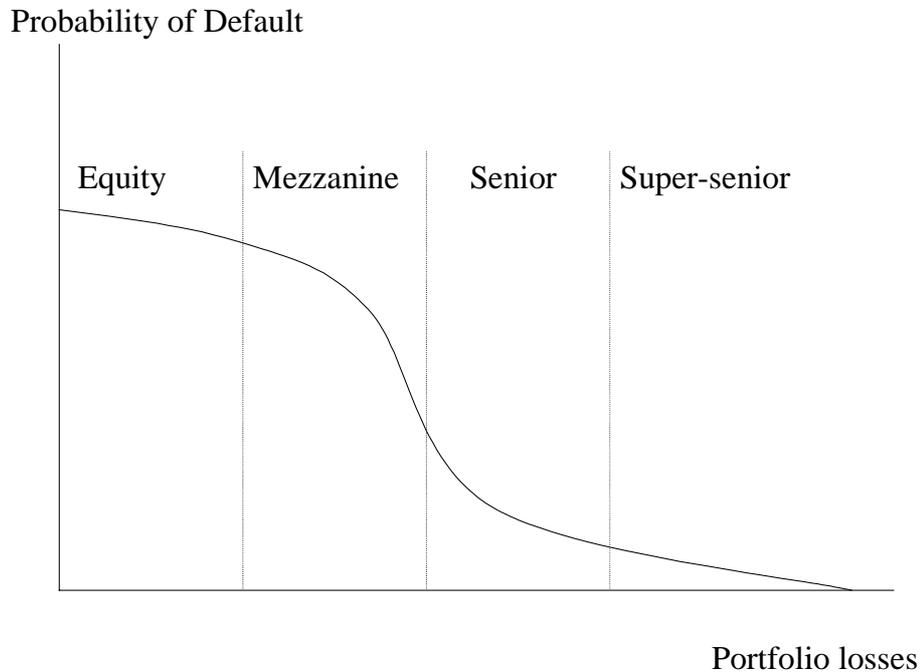
Insurance companies are therefore active risk-seekers in credit transfer markets and use credit derivatives to access risks not available in cash markets. Part of this activity is as intermediaries, as some large insurance companies provide alternative financial products and services to clients beyond the traditional insurance products. Amongst the types of insurance companies active in markets, the largest property-casualty companies, European and Bermuda reinsurers and monoline insurance companies dominate the markets¹⁰. Their

strategies vary: some participate mainly in traditional financial guarantees and senior tranches whilst others participate more as investors in lower credit quality portfolio credit derivative transactions. In general, a few key players rule markets but some smaller life funds have started to expand their investments in collateral debt obligations.

Security houses have in the past been ramping up their activities in risk transfer markets and are reportedly seeking to increase their expertise and prominence as intermediaries in credit derivative markets. As intermediaries they are at the forefront of structuring credit derivative deals, trading and quoting prices for end investors thereby earning high-margin fees. Regarding security houses participation in the markets, they hold roughly an equal market share as both buyers and sellers of credit protection, reflecting their role as intermediaries taking neutral positions with little net risk.

Institutional investors such as pension funds, mutual funds and hedge funds play an active role in credit risk transfer markets, although so far with relatively limited economic impact as market shares for different institutional investor types are all below 5 per cent. Market shares calculated solely on the basis of outstanding amounts can however give a misleading picture of institutional investors exposures, as they do not take into account the fact that risk levels differ substantially within different credit derivatives transactions (figure 3).

Figure 3. Tranching of portfolio basis credit derivatives



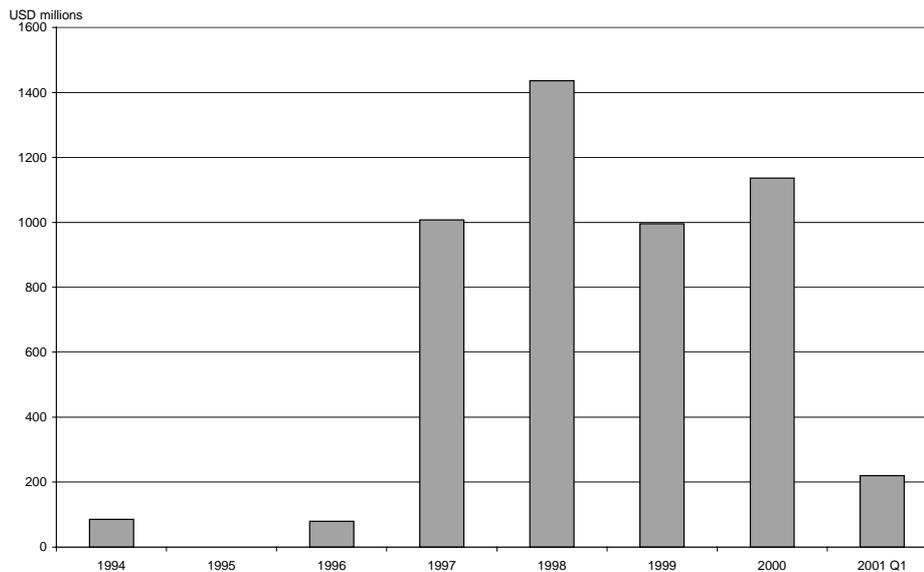
Source: OECD

Insurance-linked securities

Insurance companies have been among the first financial institutions to rely indirectly on risk transfer markets. Their reliance has taken the form of direct reinsurance, where insurers borrow off-balance sheet capital in order to reduce pressure on own risk-bearing capital. The market for reinsurance has been well developed with professional reinsurers specialised in taking on risks from direct insurance companies at a low cost. The cost advantage stems from reinsurance companies' large capital bases, well-diversified portfolios plus good access to financial markets. The reinsurance market depends on supply and demand factors, and after a series of major catastrophes a shortage of reinsurance funds can drive up prices. This was exactly the case in the United States in the wake of Hurricane Andrew and the Northridge earthquake in the mid-1990s, when reinsurance premiums more than doubled. In reaction to this rate spike, demand for alternative risk transfer solution arose and some insurers began to develop financial based solutions that transferred insurance risk to capital markets.

Approximately USD 4,5 billion worth of these capital market insurance solutions have been issued at financial markets since 1996 (figure 4). The current outstanding amounts are believed to stand at around USD 2 billion¹¹. After several years of growth, issuance of insurance-linked securities stagnated in the late 1990s after a drop in reinsurance premiums, which made insurance-linked securitisation a less attractive alternative. In the low-rate environment with plenty of coverage available, companies and insurers had less need for alternative solutions to obtain capital; however, some transactions were completed nonetheless, which generated a constant issuance-flow of insurance-linked securities. Though levels seem robust, issuance volumes tend to overstate the true economic significance of capital market solutions relative to reinsurance markets in that only the premium equivalent of insurance linked securities should be counted as insurance. If these considerations are taken into account, the total adjusted amount of coverage represents less than 0,1 per cent of the reinsurance market premiums¹².

Figure 4. Catastrophic issuance



Source: Swiss Re

Note: List could be incomplete due to missing private placements

The majority of transactions have involved catastrophe bonds, which basically in design have the same features as credit derivatives with the only difference being the underlying assets. Catastrophe bonds are written on the basis of predefined natural catastrophes, typically an earthquake, a hurricane or a

windstorm with default probabilities typically below 1 per cent (occurs less than one year in a hundred) plus relatively easy to project underlying asset patterns, which are important prerequisites for transactions to obtain necessary ratings and reasonable prices¹³. Other transactions include contingent capital instruments of which a large part was issued prior to 1997, and differ from insurance in that they only provide funding lines and not indemnification. In comparison with the other types of transactions, the number of life insurance securitisation deals fade. Moreover, the primary motive of issuers appears to be obtaining funding as opposed to transferring risk to markets. Some life insurance companies with guaranteed savings returns have, however, been buying traditional capital market products such as floors or swaptions in order to counteract the negative effects from declining interest rates and buy protection against further losses¹⁴.

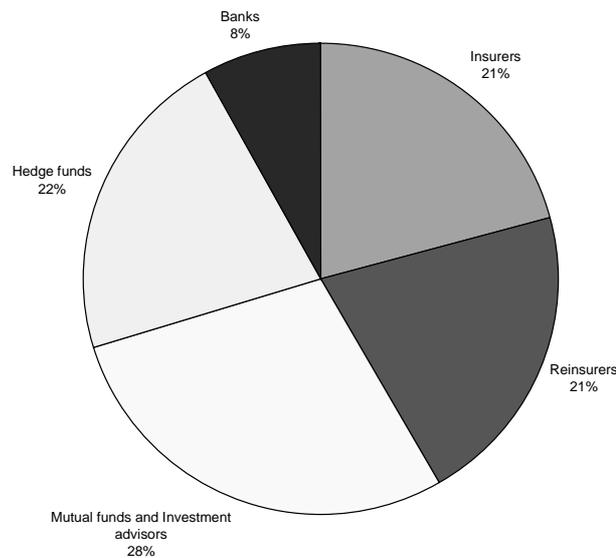
Market participants active in arranging insurance-linked securities expect that the events of 11 September have exacerbated the need for insurers and reinsurers to turn to capital markets to write off their balance sheet risk. Insurance companies' incentives to search for capital market solutions have been underpinned by the capacity crunch and hardening insurance markets, where insurance and reinsurance premiums have rocketed to high levels. Market reports from beginning of 2002 indicate that activity is picking up again with four deals in the investment bankers' pipelines, covering about USD 400 million of catastrophe reinsurance risk. Three of these transactions are constructed for reinsurers that are well known to the market, whereas the fourth is for a Lloyd's syndicate, which would be their first use of insurance-linked securities¹⁵. Investment banks expected the issuance of catastrophe bonds alone would climb to USD 1,5 – 2 billion in 2001, and further expand in 2002 with an additional USD 2-3 billion¹⁶. Some analysts are even more optimistic and estimate catastrophe securitisation will reach USD 10 billion annually by the end of the decade¹⁷.

However, some insurance market participants have a more subdued perception of the growth potential in insurance-linked security markets, viewing deals that have been completed mainly for strategic reasons and not pure economics. The participants have wanted to get familiar with the concepts and establish an alternative source of funding in case traditional sources ever became expensive/scarce.

Risk transfer products have received attention among traditional investor vehicles such as mutual funds and hedge funds comprising almost one half of the investments in catastrophe bonds (figure 5). As an example, LTCM was making initial investments in catastrophe bonds before the collapse in 1998. Insurance companies represent another large part of the investor segment

accounting for more than 40 per cent of the investments in catastrophe bonds. Amongst insurers, in particular, reinsurers hold a large market share with some estimates suggesting that it is likely to be around 30 per cent. Life insurers are another large category of investors with the vast majority of funds coming from the United States and the rest from Europe¹⁸.

Figure 5. Market participants in the market for Catastrophe bonds



Source: Bank Leu; Goldman Sachs.

III. Underlying factors driving the development of transfer risk markets

The latest development highlights the convergence between banks, insurance companies and financial markets as risks to an increasing degree are being transferred between financial sectors. A range of factors underpins the convergence, some of which are based purely on economic reasons whilst others are based on different regulatory frameworks. In this context, separating the perspective of the protection buyers from the perspective of the protection sellers and their underlying incentives provides the clearest picture of the factors driving the development of the risk transfer markets.

Protection buyers typically seek to transfer risks that they take on as part of their traditional core activities. Their incentives to employ transfer risk markets will depend on various factors including the cost of shedding the risks in comparison with the cost of retaining the risks on their balance sheets. In this context, the

trade-off between removing or retaining risks will be impacted by the regulatory treatment of the activities in various jurisdictions. This issue is particularly relevant, if regulatory capital is above levels that companies' internal risk management models would suggest to be the appropriate amount of economic capital set aside to guard against unexpected losses¹⁹.

From the perspective of protection sellers, the key factors underpinning the decision to participate are the traditional investment considerations: the risk adjusted return from the investment would need to be attractive; investments should comply with the overall investment strategy; and the existence of any legal or regulatory barriers preventing investors from undertaking the risk. To the extent that protection buyers and sellers can deploy capital more efficiently, in addition to diversification gains, there are economic gains to be shared from transactions.

The growth of transfer risk markets has been underpinned by complimentary motivations of the various market participants, i.e. those wishing to mitigate risk or assume risk, and those wishing to intermediate. In this regard, special market conditions impact the present development of risk transfer activity in insurance and credit markets. In the following discussions, these underlying factors are highlighted via separate focus on credit-and insurance-linked risk transfer markets.

Credit-linked securities

For participants active in the business of credit risk transfer, credit derivatives represent yet another option to unbundle risks into component parts, and then sell these risks to investors. Credit derivatives are an important area of growth since they transfer and diffuse credit risk in as simple or complex a manner as desired, and in ways that are not generally available through traditional cash market instruments. The process underpins a broader application scope, increasing the potential range of market participants able to benefit from utilisation. In order for credit derivatives to develop into full scale capital market products, such supply and demand effects are often considered to be important factors due to the positive implication for trading volumes and, in turn, reduction in transaction costs.

From the view of protection buyers -- with commercial banks being the most dominant participants -- credit-linked securities are appealing for a number of reasons, many of which can be traced to the risk management and capital framework often used by institutions active in risk transfer markets. The basic

inducements are 1) dispersion of risk; 2) relationship banking; 3) capital optimisation; and 4) broadening of application base.

Dispersion of risk. In particular, credit risk derivatives expand the diversification options for financial institutions holding credit risks on their balance sheets. Often credit-investors -- whether its in traditional loans or corporate bonds -- have concentrations to certain companies, sectors, or geographic areas they may wish to diversify or to lower their overall risk exposure. With the help of credit derivatives, institutions can diversify excess or unwanted credit risk, and with increasing liquidity and sophistication of the products, the benefits can be achieved without paying unreasonable transaction costs.

Relationship banking. Commercial banks have been the governing participants in credit derivatives markets in order to mitigate credit risks from their balance sheets, especially in Europe where commercial loans constitute a large part of total assets. Credit derivatives do, however, only represent the latest tool to unload credit risks. The two traditional tools used by banks have been loan syndication and loan sales. Syndication takes places at the initiation of a loan, whereas loan sales are typically done sometime during the life of a loan when the bank has reasons to believe that the credit is impaired.

Credit derivatives have certain advantages over the other methods of managing credit risk, but give the same opportunities. Credit derivatives allow banks to diversify excess or unwanted credit risk while still supporting customers through traditional lending activities. Commercial banking has typically been relationship driven and banks view lending to be part of an ongoing relationship with corporate clients. For clients with credit demands, banks may feel obliged to lend, in order to maintain the relationship, although doing so will impact diversification considerations. Credit derivatives allow banks to buy protection and offset or mitigate certain credit risks or excess concentration to a certain corporate name. Along the same lines of reasoning, banks may be reluctant to sell loans in the secondary markets, as outstanding loans are the interface banks have with their customers.

Capital optimisation. Capital consideration is another significant element underpinning banks' incentive to use credit risk transfer markets. In many European banks spread lending has been one of the significant activities, but with increased privatisation and generally more focus on shareholder value, the businesses of spread lending provide only modest returns as it binds large amount of capital. In a process of trying to find more lucrative businesses, there has been an incentive among bank managers to free up capital. In this respect

credit derivatives have produced a means toward the end of achieving shareholder value by lessening economic capital requirement constraints.

As regards capital adequacy, protection buyers such as banks can use credit derivatives to obtain capital relief from regulatory requirements. Under the current capital adequacy rules, credit derivatives that are used to buy credit protection are treated similar to loan guarantees. Banks that buy protection from another bank are therefore afforded capital relief using lower required risk weightings. In Europe where banks in general have larger exposures to high credit quality corporate firms, regulatory capital could exceed economic capital as loans to corporate companies have equal risk-weightings independent of rating²⁰. Via credit derivatives and financial intermediaries, the regulatory charges for exposures to corporate clients with high credit quality could be reduced. This is to some extent indicated by the fact that the vast majority of European credit derivatives are based on credits that obtained high ratings²¹.

Broadened application base. Investment banks could benefit from risk transfer markets through expanded abilities to extend loans that they were unable to make before due to their limited access to balance sheet capital -- one necessary condition for warehousing loans. As a by-product from having markets for risk transfer, entry barriers in large-scale loan transactions would be lower, which could potentially increase the number of market players and lead to positive competition externalities.

Among the participants buying credit protection, a growing number of institutional investors have started doing so in order to hedge excessive risks stemming from corporate bond investments²². Furthermore, institutional investors have used credit derivatives to create exposures to credits that are either not available in cash markets, or that better suit their requirements in tenor or quality.

From the perspective of protection sellers, credit derivatives offer an alternative to traditional credit risk securities such as corporate bonds. In particular, portfolio or pooled transactions have gained popularity among the institutional investor segment, reflecting the broad similarities with existing forms of asset backed securities that are generally well understood by investors. The main factors underpinning investors interest in issuing credit protection are: 1) enhancing yields; and 2) return on capital considerations.

Enhancing yields. In particular, institutions with large-scale asset portfolios such as life insurers have begun to allocate a proportion of their assets to portfolio credit derivatives, and thus acting as protection sellers. Following the decline in interest rates across the board, in particular during the past years, and

reduced supply of traditional securities such as sovereigns, insurance companies have been reported to increase their demand for credit derivatives as part of revising their investment strategies. The fact that some life insurers have liabilities promising guaranteed minimum returns to savers could be an additional factor underpinning life insurers appetite for risk in the credit derivatives markets as they have a higher return potential.

Return on capital. By and large the motivations driving investors to pursue markets for credit derivatives are the search for higher risk adjusted returns and/or enlarging business lines for improved future returns on capital. As regards the former argument, at the root of insurance companies' appetite for credit risk is a belief that the credit cycle differs from the insurance counterpart, leading to diversification gains from credit risk investments. Which respect to the latter, a number of insurance companies active in credit derivatives market enjoy strong ratings and are able to leverage their financial strength in providing financial solutions to companies that are looking for ways to improve credit quality. As a contributing factor, insurance companies appetite for credit derivatives have been driven by excess capacity, following the soft insurance markets prevailing in the late-1990s.

Insurance companies appetite for credit-linked deals may be reduced after 11 September for two reasons. First with a more prosperous market, insurance companies will prefer to use the capital they have available to write plain vanilla insurance contracts for higher premiums. Secondly some insurance companies have suffered significant losses on credit contracts limiting insurance companies enthusiasm for credit linked securities. With insurance companies getting less enthusiastic towards credit derivatives markets, other institutional investors with large asset portfolios such as hedge, investment and pensions funds could be potential substitute candidates although their engagement in these markets until now has been limited.

Insurance linked securities

From a first observation, transfer risk markets for insurance risk have to a large extent been correlated with the cycle in insurance premiums. Following the hardening of insurance markets in the mid-1990s, markets for risk transfer solutions started to take off as an alternative to traditional reinsurance solutions. However, the prosperous market conditions did not last and insurers had no urgent need for alternative risk solutions when insurance markets softened at the end of the decade, thus cooling their interest risk transfers.

The increase in premiums starting well prior to September 11 and subsequently reinforced by the events of that date are expected to create a more favourable environment for alternative risk transfer markets and thereby facilitate pick-up activity. Fuelling the growth of capital market risk solutions will be the reduction of capital, not only from the losses following September 11 but enhanced by withdrawals of market participants.

Against the backdrop of insurance companies activities in risk transfer markets, the evolution of markets seem to a large extent sensitive to insurance markets' embedded cyclicity: in times with excess capital, insurance companies catalyst the expansion of credit risk transfer markets, whilst hardening markets force insurance companies to bolster their capital adequacy via risk transfer markets. In this context, one way to view the progress of transfer risk markets is from the perspective of capital management as markets on one hand offer access to capital and on the other is a potential investment object when capitalisation is perceived to be in excess supply.

From the perspective of protection buyers, alternative risk transfer markets offer several potential benefits to issuers: 1) additional insurance capacity/pricing; 2) lower counterparty risk; while 3) cost of setting up deals is the main constraint.

Capacity. Issuance of insurance-linked securities offer an alternative to traditional reinsurance methods in times when prices have risen substantially and capacity is severely constrained. Furthermore, as opposed to reinsurance that is normally negotiated annually²³, they provide multiyear coverage at predetermined prices and can therefore insulate insurance companies from large fluctuations in reinsurance prices. Risk transfer solutions are thus useful for smoothing out earnings.

Counterparty risk. Alternative risk transfer solutions can be structured to minimise credit risk. In traditional reinsurance transactions, purchasers take counterparty risk into account when choosing their reinsurers. Financially strong reinsurers are therefore often preferred, which is highlighted by the fact that reinsurers rated below AA as of 1999 wrote just one-fifth of the reinsurance contracts²⁴. However, as even high investment grade companies may fail, solutions based on risk transfer methods and backed by investment grade bonds dollar-for-dollar against all potential claims offer even greater credit quality than conventional reinsurance.

Cost. High transaction costs and generally small deals are major disadvantages for the development of capital market solutions. Market analysts estimate the one-off costs of a catastrophe bond securitisation to be around USD 2 million, and when insurance markets were softest, risk markets were thus unable to

provide a serious alternative. According to one rating agency, alternative risk transfer solutions become a viable alternative when reinsurance rates increase 30 per cent or more.

From the perspective of protection sellers, alternative risk transfer solutions provide investors with 1) favourable market yields; 2) diversification opportunities while 3) concentration on specific regions weigh negative on investor interest.

Comparative market returns. Investment in insurance-linked securities tend to provide attractive returns with rates that are comparatively higher than those for corporate bonds and asset backed securities carrying the same credit rating. Based on a representative sample of 17 catastrophe bonds issued from 1997 to 2000 with above investment-grade rating, the average spread over the risk free rate was 420 basis points, whereas the spread of bonds with Baa ratings in the same time frame was below 300 basis points²⁵. These higher spreads compensate investors for: the relative illiquidity of catastrophe bonds, possible inaccuracy of ratings caused by model forecasts for future expected losses and the newness premium for non-standard securities²⁶.

Diversification effect. Apart from higher absolute returns, alternative risk transfer solutions offer a risk profile that is less correlated with credit risks, as empirical analyses show that the occurrence of insurance related events is uncorrelated with returns from traditional investment securities such as bonds and equities²⁷. Adding insurance-linked securities into a traditional investment portfolio would thus reduce the overall riskiness of the portfolio and improve the portfolio's risk adjusted return. Notwithstanding empirical analyses documenting fairly uncorrelated returns there is, however, always a possibility of risks that historically have been uncorrelated becoming inter-related, e.g. with an earthquake in California hitting bourses globally.

For reinsurance companies, the driver for undertaking investments is also related to diversification effects: gaining exposures to different types of catastrophic risks. For small and medium sized reinsurers it may be difficult to acquire exposures in areas where they do not have a presence but with the help of catastrophic bonds they may obtain positions including those specific risks. In addition, some market participants have suggested that there might also be involved some kind of risk sharing between reinsurance companies in order for them to swap different types of catastrophic exposures²⁸.

Concentration. So far, markets for risk transfer instruments have been constrained by a preference to obtain investment grade ratings to make the bonds attractive to investors. In the process of structuring deals under this

constraint, the application of risk transfer solutions has essentially been reduced to catastrophe exposures, with events happening less than one year in a hundred²⁹. In addition, catastrophe bonds restricted to specific geographic regions have retained high interest, as the underlying assets' pattern (natural catastrophes) is relatively easier to predict for scientists, assisting default discovery mechanism in creating credible financial models, and thus satisfying the requirements of rating agencies and potential investors. With capital markets showing a reluctance to build up exposures outside known regions, the scope for insurance-linked securities has been limited and some investors have reached their exposure limit on earthquakes in California/Japan and/or Florida hurricanes.

The requirement to present credible default models have so far inhibited the use of risk transfer markets for delegating risk stemming from traditional insurance risks to financial markets. However, one promising area -- although still in its infancy -- is life insurance securitisation, whereby companies sell future profits to outside investors in return for a lump-sum payment. From the perspective of protection buyers (life insurance companies), risk transfer methods offer an opportunity to optimise their capital and to utilise their earnings power more efficiently, as companies are under increasing pressure from owners to deliver shareholder value. As regards investors, participating in transactions essentially allows them to invest in a new asset class with its specific risk characteristics. In the early days of market's existence, when the volume of transactions is small, pioneers may have to pay a premium and, thus, will accept less attractive terms than will ultimately be the norm³⁰.

V. Financial stability issues related with growth of transfer risk markets

From a financial stability perspective, the development of markets for risk transfer is at an early stage, which means that tests of the markets' stability during a severe down turn have until recently been limited or non-existent. Withstanding the fact, a large part of the market hype came at the end of 1990s, when economic recession seemed remote has been an additional cause for concern. The events of 11 September and the Enron collapse have, however, been tests of the markets resilience and revealed few weaknesses as exposures have been managed without systemic implications. As a matter of fact, transfer risk instruments may have been one of the factors that may have made the deteriorating quality of credits more manageable as credit losses have been more dispersed³¹. However, until markets have been fully tested, the convergence of credit, insurance and capital markets, now evident from the growth in transfer risk markets, is an issue that international regulators have on the radar screens, as a potential risk factor.

At the core of regulators' concerns is the pace at which markets have developed during the last five years and the flourishing climate prevailing until recently. In this respect, surveillance and oversight of the insurance sector, in particular, and transfer risk markets in general have been stepped up. From authorities' point of view, there is a range of financial stability issues that has arisen following the tremendous growth in risk transfer markets: 1) the element of regulatory and capital arbitrage; 2) learning curve risks; 3) pricing of instruments; 4) competition factors; and 5) shareholder value considerations.

Regulatory and capital arbitrage. One of the consideration relates to the element of capital arbitrage that is involved in risk transfer transactions between banks and insurance companies, caused by different regulatory regimes. While precise comparisons between the frameworks are difficult to obtain, certain significant differences can be highlighted in this context. For example, in the regulatory framework for banks and security firms, insurance risk is essentially ignored, whereas in the EU solvency regime for insurers, investment risk is treated through limitation on investment rather than capital adequacy rules³². Clearly if the same risks would attract the same regulatory capital, incentives to transfer risk based on regulatory arbitrage would be limited. According to one supervisor, the differences require in the long term a new Basle-type capital regime to ensure that regulatory and accounting arbitrage is minimised³³. Although, regulatory capital considerations were one of the factors that catalyst the interest for risk transfer markets earlier, anecdotal evidence seems to indicator that this factor is no longer the major driving force for market development.

Learning curve risks. Following markets hype in recent years and the premature status concern about participants' knowledge of the risks that they are undertaking in transactions, often referred to as "learning curve" risks, have been raised. To a large extent, the potentially troubling issues are at the borderline business carried out between different sectors and whether participants can differentiate the various types of risk without getting confused. The mismatch between writing insurance contracts and doing business in the field of banking highlights the fundamentally different legal cultures in the two industries and supervisors are worried that differences are not well understood.

Pricing of risks. As a consequence of the lack of experience and/or sophisticated technology, the pricing of risks may be inaccurate. The fact that there exists no easy way of measuring creditworthiness, adequate pricing and proper valuations are demanding and require significant resources. On occasions of higher uncertainty, the consequences of inadequate pricing and valuation become apparent and to the extent that risks persistently are priced below fundamentals, broader stability impacts can be seen. The reports of losses

at high profile companies with sophisticated models indicate that experiences in dealing with risks and a culture for managing risks take time to build up in organisations³⁴.

Competition factors. Traditionally, private companies in general and financial companies in particular with deteriorating earnings' power have found themselves in financial distress when they have expanded their business in areas where they have had limited expertise. Market participants report that the active involvement of insurance companies in credit markets linked to soft insurance markets prevailing in the late-1990s suggest a similar pattern. Encouraged by low returns in traditional insurance business lines, companies may feel forced to pursue high yield investment in order to optimise and deploy existing capital more productively.

Shareholder value. To an increasing degree financial companies have had to respond to shareholders' demand for competitive returns on equity, i.e. focus on creating value for shareholders. By and large, insurers have large capital bases, and given the softest rates hitting the insurance sector in 1999 and 2000, they have looked to risk transfer markets for credit exposures as an alternative way to deploy their excess capital. In normal times, the insurance sector has excess capital, but during abnormal times such as the one that occurred after 11 September, companies need the capital. The highly cyclical nature leads to a similar appetite for risk transfer investments. At the heart of insurance companies' appetite for credit risk are prevailing premiums in insurance markets. With the present hardening of markets, insurance companies' interest in transfer risk markets is expected to cool; however, market analysts are not expecting a sustained increase in rates, so a renewed interest for high yielding instruments will be a likely outcome. From a financial stability point of view, it is however of importance that financial sectors are well capitalised and that they do not jeopardise future stability by pursuing one-sided shareholder value goals.

V. Conclusion

Although challenging for both market participants and supervisors, risk transfer markets offer opportunities for better risk diversification, as the institutions originating the risks are not necessarily the best entities to retain the risks. As least in principle, exposures would be better diffused through the system with no single agent excessively exposed.

In fact, risk transfer markets offer firms an opportunity to use capital more efficiently. Capital is an integral part of financial companies' risk management approach and the core buffer when unexpected risks materialise and it has to

absorb losses. However, in normal times when visible risks are lower companies prefer lower levels of capital. In this respect, risk transfer markets could smooth companies' demand for capital and improve the immediate access to capital when needed. As a positive externality, risk transfer markets could help to facilitate more manageable credit and insurance cycles and perhaps smooth the premium curves, leading to lower cyclicity among financial companies' earnings.

Notwithstanding the opportunities for better management of risks, some are concerned that companies use markets actively in order to dress up their return on capital. When transferring risks to capital markets, financial companies can reduce the amount of capital they would need to hold as a buffer against the risk of experiencing unexpected losses. As an important side effect this enables companies to improve some of the key ratios that are important when shareholders measure company performance such as return on equity. Although, measures may on surface look better when the business climate is relatively calm, the advantages could easily turn into disadvantages if suddenly risks materialise and companies need access to extra capital from counterparties as they may be under pressure as well. For companies using risk transfer markets it is therefore obligatory that they have an absolute overview of direct as well as indirect exposures and take into consideration that counterparties economic situation may become correlated with the companies' own fragility.

There are other important obstacles, which could result in a bumpy road until transfer risk practices are integrated in to risk management frameworks. One area is transparency and disclosure, which currently are lacking amongst market participants making it difficult for investors to track credit risk exposures for individual institutions. In particular, accounting regulations have been under scrutiny by authorities after the accounting debacle following the collapse of Enron, and for instance criteria under which credit derivatives in SPVs are consolidated into balance sheets have been one of the areas where revisions have been considered. In particular, the principles related to minimum required equity held by third party investors have been under scrutiny, with the intention of making it more difficult to obtain off-balance sheet treatment. With inadequate disclosure and public filings the market discipline exercised by investors would be far from optimal which could have negative implications for financial stability.

Of particular importance and attention is the transfer risk practice used by financial conglomerates and their separate legal entities. If legal, accounting or regulatory considerations are behind the booking of transaction in different vehicles, rather than more fundamental reasons, transactions should be carefully monitored. The Joint Forum has stressed that the incentives to engage in

regulatory capital arbitrage may be more important in their implications within conglomerate firms than across firms. But exactly the same concern is also present for financial conglomerates that engage in transactions with outside counterparties. If one legal entity of the conglomerate, for example a bank subsidiary, delegates risk to asset managers or insurance companies, whilst asset managers or insurance companies of the same conglomerate firm are buying risks from other banks, the economic reason for these transactions would tend to be minimal.

Recent developments suggest a need for supervisors to ensure that firms take a prudent approach to the management of risk when they engage in transfer risk markets and take on risks from other sectors. The Joint Forum in a recent report has concluded that there is on this basis an increasing need for supervisors in the different sectors to share information on risk exposures, management practices and techniques. Furthermore, the study says: “arrangements can help alert supervisors to particular vulnerabilities related to risks with which they are less familiar and help supervisors to develop appropriate monitoring regimes as firms increase the degree of risk transfers”³⁵. There may be a need for supervisors to expand their scrutiny in risk transfer markets as sector participants find rating agencies to be the only people “that can set capital rules across jurisdictions and ensure that capital liquidity is adequate for the system”³⁶.

NOTES

- 1 Annual Association of Insurance and Risk Managers Lecture (January - 2002) by FSA Chairman, Howard Davis.
- 2 Some analysts consider also more general securitisation products such as mortgage back securities to be part of the pool. These products have, however, developed into relatively mature financial market products, and for those reasons they have not been included in the following.. .
- 3 See Centre for the Study of Financial Innovation, “Banana Skins 2002”, February 2002.
- 4 See David Rule (2001), ‘Risk transfer between banks, insurance companies and capital markets: an overview’, *Financial Stability Review*, December 2001, Issue no.11 for more elaboration on this issue
- 5 The survey from the British Bankers Association 1999/2000 is used as the main underlying data source in the section two on credit-linked securities
- 6 Bank for International Settlements, “The global OTC derivatives market at end-June 2001 – Second part of the triennial Central Bank Survey of Foreign Exchange and Derivatives Market Activity”, December 2001.
- 7 Standard&Poor’s: CDO volume to continue to grow in 2002 amidst stressful economic climate, January 2002.
- 8 Fox-Pitt, Kelton: Credit derivatives, December 2001.
- 9 David Rule (2001), ‘The credit derivatives market: its development and possible implication for financial stability’, *Financial Stability Review*, June 2001, Issue no. 10.
- 10 Financial Services Authority: Cross-sector risk transfers, May 2002.
- 11 Bloomberg; Lane Financial: Current Trends in Risk Linked Securitization.

- 12 European Commission: Studies onto the methodologies to assess the overall financial positions of an insurance undertaking from the perspective of prudential supervision, May 2002.
- 13 Lloyds presentation at the OECD Insurance Committee's meeting, December 2001.
- 14 Derivatives Week: Danish pension funds execute massive euro swaptions, October 2001.
- 15 Euromoney: Insurance's catastrophic year impels it onto banks' terrain, January 2002.
- 16 Bondweek: Lehman readies new cat bond offering, December 2001.
- 17 Swiss Re, 'Insurance-linked Securities', 1999.
- 18 Financial Services Authority: Cross-sector risk transfers, May 2002.
- 19 Economic capital represents the necessary reservation of capital to absorb unexpected losses, which as opposed to regulatory capital is quantified on the basis of banks' own statistical calculations.
- 20 Economic capital represents the necessary reservation of capital to absorb unexpected losses, which as opposed to regulatory capital is quantified on the basis of banks' own statistical calculations.
- 21 JP Morgan and RMG: The J.P. Morgan guide to credit derivatives, 1999.
- 22 In Derivatives Week (14/10/2001 and 25/11/2001) for example, Schroeder Investment management and Lutheran Brotherhood, are reported to be planning future application of credit derivatives in order to hedge credit risk on their investments in corporate bonds.
- 23 Some 70 per cent of all insurance and reinsurance policies run annually from January 1 to December 31 (Euromoney: Insurance's catastrophic year impels it onto banks' terrain, January 2002)
- 24 Standard & Poor's: Global reinsurance highlights, 2000 Edition.

- 25 Swiss Re: Capital market innovation in the insurance industry, *Sigma*
No.3/2001.
- 26 European Commission: Study into the methodologies to assess the overall
financial positions of an insurance undertaking from the perspective of
prudential supervision, May 2002.
- 27 According to Bank Leu, the correlation of cat bonds with the financial
markets fluctuates around zero. In a study by Guy Carpenter cited in Swiss
Re (see footnote 20), it is estimated that adding 2 per cent of catastrophic risk
in a portfolio consisting of 60 per cent stocks and 40 per cent bonds reduces
the standard deviation by 0,25 per cent.
- 28 Financial Services Authority: Cross-sector risk transfers, May 2002.
- 29 Lloyds' presentation at the OECDs Insurance Committee's meeting,
December 2002.
- 30 Standard & Poor's: Interest in Life Insurance Securitization Heats Up,
October 2001.
- 31 Alan Greenspan: Finance – United States and Global, Institute of
International Finance, April 2002
- 32 The Joint Forum: Risk Management practices and regulatory capital,
November 2001.
- 33 Euromoney: "Insurance's catastrophic year impels it onto banks' terrain",
January 2002.
- 34 The Wall Street Journal (31/01/2001) cited losses among a variety of firms,
including American Express, American General, etc.
- 35 The Joint Forum: Risk Management Practices and Regulatory Capital,
November 2001.
- 36 Euromoney: Insurance's Catastrophic year impels it onto banks' terrain,
January 2002.

