

## Credit risk transfer instruments: their use by German banks and aspects of financial stability

Credit derivatives and securitisation separate credit risks off from the original credit transactions and render them tradable in the market. The development of credit risk transfer markets has the potential to change the face of banking business permanently. In the context of an initiative of the Banking Supervision Committee (BSC) of the European System of Central Banks, in late autumn 2003 the Bundesbank conducted a survey of the ten most active German banks in the credit risk transfer markets. These institutions accounted for €303 billion as risk takers (guarantors) and €263 billion as risk shedders. The survey shows that some four-fifths of credit risk trading takes place within the global banking system. With regard to the instruments deployed, credit default swaps account for by far the largest share; the most important reference obligations are ones with good to very good credit ratings.

Credit risk transfers can make a valuable contribution to the resilience of the financial system. However, the intermediary function is concentrated on just a small number of market players. Therefore, major market players, in particular, need to have well-developed risk management systems. Moreover, enhanced transparency regarding risk positions is desirable as a means of strengthening market discipline. The supervisory authorities will pay greater attention to both aspects in the future.

## Survey of credit risk transfer instruments

*Credit involves risk*

In any credit transaction, the creditor runs the risk of the borrower possibly being unable to meet future claims arising from the loan. However, the creditor can hedge against the repercussions of default (referred to as a credit event) by concluding an insurance contract in which it assumes the position of risk shedder. The contract separates the credit risk off from the original financing transaction and transfers it to a third party, the risk taker. This can also be carried out by using other traditional insurance products such as guarantees or surety bonds.

*Credit derivatives versus traditional insurance products*

Credit derivatives are alternative instruments which split credit risk from the financial transaction. Their objective is to make the separate credit risk marketable. Marketability requires a high degree of standardisation, which is being furthered, *inter alia*, by the use of master agreements prepared by the International Swap and Derivatives Association (ISDA). In addition, credit derivatives define the amount of compensation to be paid irrespective of the actual loss incurred by the risk shedder. This does away with the need for individual loss verification; the risk shedder does not even have to own the reference obligation.

*Markets for credit derivatives and securitisation products*

The wide variety of modern credit risk transfer products has been generated by the fact that it is possible not only to isolate risks but to combine them in new ways. In this article, "credit derivatives markets" is the term used to refer to trade in a single credit risk (or a basket of a strictly limited number of single risks). If, however, an originator draws a num-

ber of credit transactions together in a special fund before separating off the credit risk and passing it on, we refer to a securitisation structure. Although securitisation uses credit derivatives as an instrument for passing on credit risk, it does represent autonomous market segments. In this article "credit risk transfer markets" is used as a generic term for credit derivatives markets and markets for securitisation products.

Credit derivatives can cover various aspects of credit risk. "Default risk" means the risk of the borrower becoming insolvent. In a more general application, "credit risk" means any risk of a borrower's creditworthiness worsening, even if default is not the outcome. Credit risk also includes spread risk, where the yield differential between a risky and a risk-free bond can change while the credit rating stays the same. The most important credit derivative, the credit default swap (CDS), transfers default risk but can also be used as a means of hedging against spread risks. The total return swap (TRS) encompasses all the economic risk involved in a credit transaction. Credit linked notes (CLNs) are an important form of credit derivatives. They are bonds issued by the risk shedder, the redemption amount being dependent on a credit event occurring. There are other credit derivatives which, in practice, only play a minor role.

If a portfolio is used as collateral, a number of credit events can occur. This allows differentiation when spreading the total risk among various groups of risk takers. "Tranches", as they are called, indicate the order of priority in which compensation is to be paid. There

*Credit derivatives cover various aspects of credit risk*

*Securitisation structures*

are a large number of securitisation structures and product lines. Typically, the bank transfers the credit risk from the special fund underlying the securitisation to a company specially set up for that purpose (special purpose vehicle). True sale securitisation occurs if the bank sells the special fund including the risk to the special purpose vehicle. However, if it retains the loan in the balance sheet and simply passes on to the special purpose vehicle the credit risk that has been split off by means of credit derivatives, what occurs is synthetic securitisation. Traditional asset backed securities (ABS) are products which bundle a large number of homogeneous instruments (eg credit card and leasing receivables). Collateralised debt obligations (CDOs), which have now become important, generally cover fewer, more heterogeneous single items (usually corporate receivables).

*Reasons for  
using credit  
derivatives  
for portfolio  
management ...*

One of the main reasons for entering a risk shedder position is to hedge in-house credit risks in the banking book. Credit derivatives also help to manage the utilisation of credit lines accurately, especially with regard to the volume of the credit position<sup>1</sup> and its maturity. If a bank assumes a risk taker position, it pursues the goal of improving the diversification of its overall portfolio by selectively expanding credit risks and the related potential yield. In contrast to classic forms of investment, this generally involves no, or only minor, refinancing costs to the bank. Credit derivatives are also used for credit substitute transactions, especially if a bank has only selective access to individual segments of the credit markets.

Intermediary banks trade credit derivatives and arrange securitisation operations in order to make a profit from trading operations or from commission. They thus use credit derivatives specifically to exploit arbitrage opportunities in the market. Open credit risk positions are closed relatively quickly in this process. When reconciling supply of and demand for credit risk and liquidity provision, intermediary banks play a key role in the functioning of the credit derivatives markets.

*... and trade*

While banks frequently employ credit derivatives as a means of avoiding large exposures, with securitisation they transfer risks from larger credit portfolios which already have a significant degree of diversification. In doing so, they satisfy investor demand for structured products and earn revenue. Furthermore, the optimisation of the regulatory capital frequently also plays an important role. As the present requirements make scarcely any distinction with regard to the creditworthiness of the borrower (which, however, will change when Basel II takes effect), banks have a certain incentive to sell assets with good ratings first. For the risk-reducing effect of securitisation transactions to be acknowledged in banking supervision circles, however, they already have to deduct "first loss" tranches directly from the liable equity capital, as these are directly liable in the event of credit losses.

*Reasons for  
securitisation*

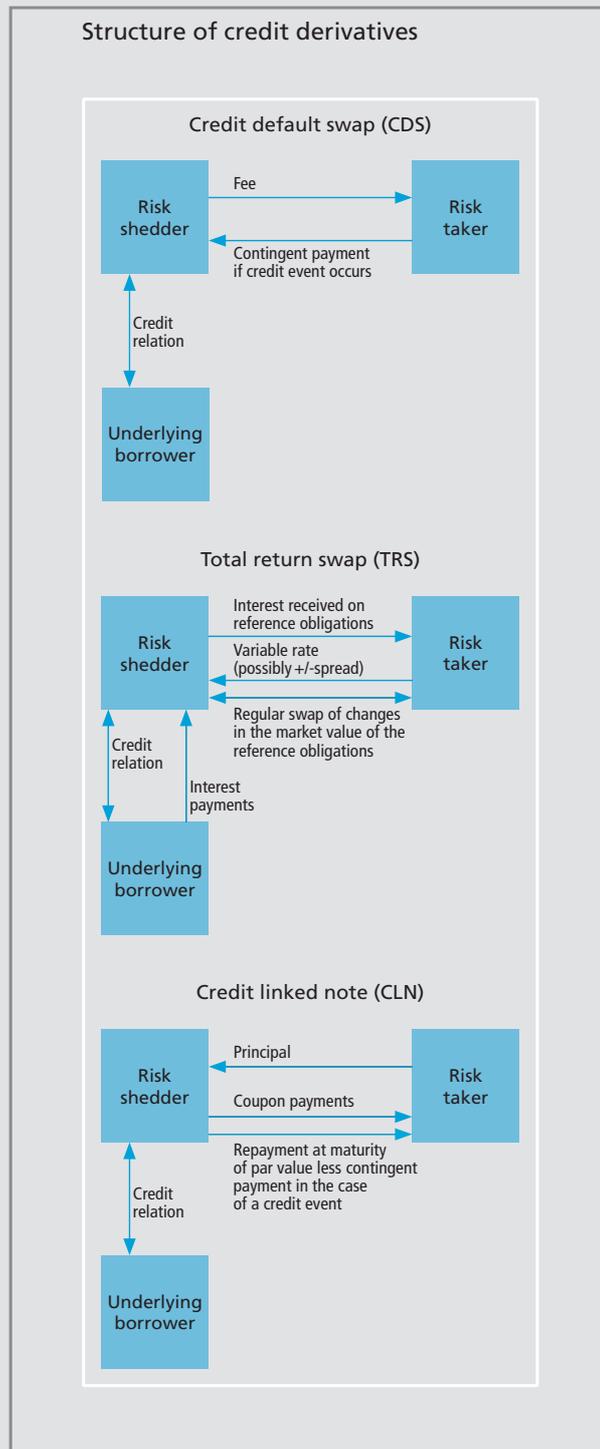
True sale securitisation is frequently used for secured refinancing. In Germany it is still the exception but is likely to be given a boost by

*True sale  
securitisation*

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<sup>1</sup> This option has become important not least against the backdrop of prudential limits to large exposures.

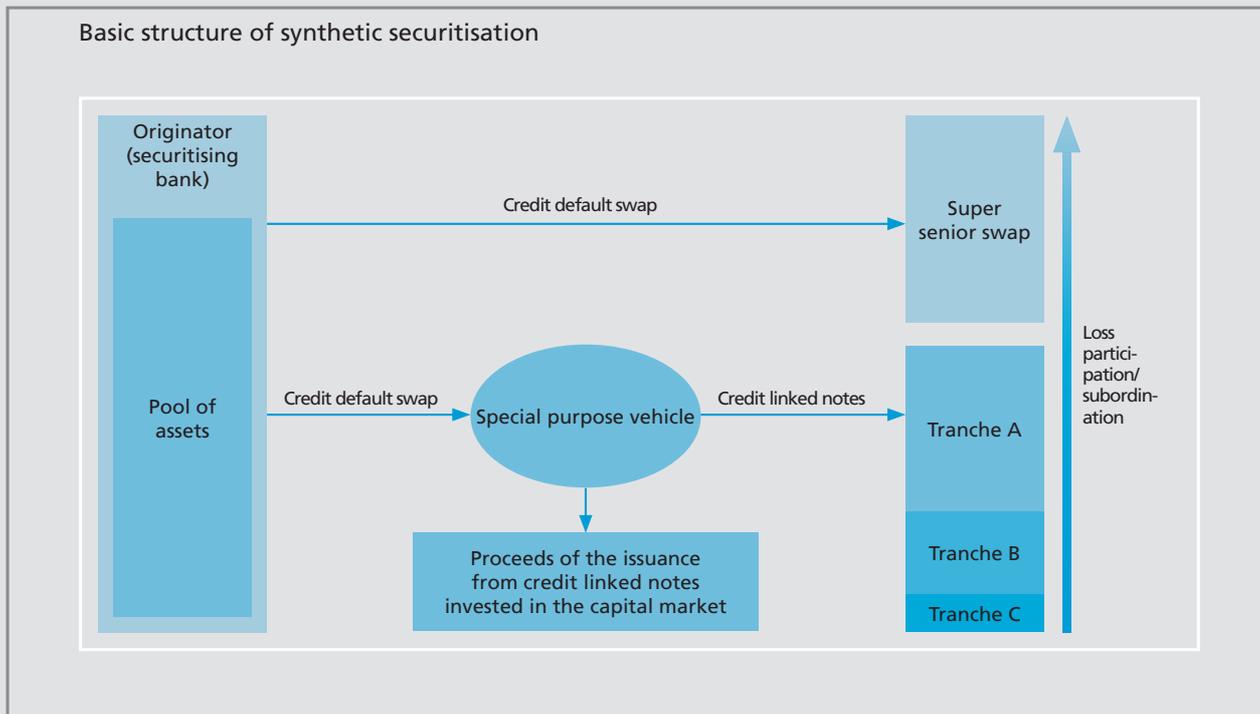
## The structure of credit derivatives and securitisation



**Credit default swaps (CDSs).** When a CDS is concluded, the risk taker undertakes to make a contingent payment to the risk shedder if a predefined credit event occurs. In return, it receives a periodic fee from the risk shedder. The amount of the fee depends, among other things, above all on the underlying borrower's credit rating, the term of the contract, the risk taker's credit rating, the definition of the credit event and the probability of simultaneous default by the risk shedder and the reference obligations. Definition of the credit event is typically standardised by referring to the master agreements of the International Swaps and Derivatives Association (ISDA). In addition to referencing to individual obligors, CDSs can also reference to a portfolio of reference obligations (portfolio CDSs). A distinction is made between nth-to-default products, which merely hedge the nth default within the reference portfolio, and tranching portfolio CDSs. Tranching portfolio CDSs are issued in various tranches which are structured according to the subordination principle. The more senior tranches only participate in the losses once all the subordinate tranches have been exhausted.

**Total return swaps (TRSs).** In the case of a TRS, the risk shedder exchanges with the risk taker the proceeds from a reference asset and the increases in the value of this asset in return for periodic payments linked to a reference interest rate. Thus the risk taker also assumes the market price risk of the reference obligation as well as its credit risk. TRSs are usually linked to liquid assets or to market indices and the market price can therefore be determined at any time. Alternative pricing mechanisms, such as trader surveys, are agreed for illiquid assets. The premium paid is usually based on a variable interest rate (eg Libor) plus or minus a certain percentage depending mainly on the credit rating of the reference obligations and of both counterparties.

**Credit linked notes (CLNs).** CLNs are debt securities issued by the risk shedder, whereby the full par value is paid back at maturity only if the agreed credit event has not occurred by then. If a credit event occurs, the risk taker's repayment entitlement is reduced by the agreed



contingent payment. In addition to the credit risk on the reference obligation, the risk taker also assumes the issuer's credit risk, resulting in a corresponding yield premium. From the risk shedder's point of view, CLNs have the advantage of eliminating counterparty risk as they are covered by the receipts from the proceeds of the issuance.

**Synthetic securitisation.** Securitisation is a means of transferring credit risks on fairly large portfolios to investors. With the aid of credit derivatives, the securitising bank (originator bank) initially transfers the credit risks arising from the underlying portfolio to an independent special purpose vehicle (SPV). This has the advantage of separating the credit risk on the portfolio and that of the originator bank. Unlike what happens in true sale securitisation, the reference obligations are not sold directly to the special purpose vehicle; instead, they remain on the originator bank's balance sheet. The investor purchases the CLNs issued by the special purpose vehicle and in doing so, assumes the credit risks

arising from the reference obligations. The special purpose vehicle invests the proceeds in the capital market to collateralise the payments to the investor.

CLNs are usually issued in various tranches which are assessed by rating agencies. Much as in the case of the portfolio CDSs, the CLN tranches issued by the special purpose vehicle participate in losses in accordance with the subordination principle. The tranche in question only participates in the losses arising from the reference obligations once all the tranches subordinate to it have been exhausted. As a result of this structure, more senior tranches are given first-class ratings. The nominal value of the underlying portfolio often exceeds the par value of the CLN issued by the special purpose vehicle. In such cases, the originator bank either retains the residual risk or transfers it directly to another market participant by means of a CDS without involving the special purpose vehicle. The latter method enables it to gain regulatory capital relief.

the German banking system's securitisation initiative (true sales initiative, TSI). Compared with other countries, however, the potential market volume in Germany could be limited by the fact that the Pfandbrief is already well established in the domestic capital market and allows at least some credit institutions to use their mortgage loans as bond collateral.

### Market structure – survey results

*Bundesbank survey*

In late autumn 2003 the Bundesbank carried out a survey of the ten most active German banks in the credit risk transfer markets with regard to the use of credit derivatives and securitisation. In addition to the four big banks, central institutions in the savings and cooperative bank sector also took part.

*Credit risk transfer markets are global*

Most segments of the credit risk transfer markets are global markets with the counterparties often domiciled in different countries. It is therefore more appropriate to refer to the participation of German banks in the market as a whole than to a German market. The involvement of German banks in the credit derivatives market (excluding synthetic securitisation) is substantial. According to the survey, the total volume of this business, as measured in terms of the nominal volume, amounted to €566 billion, of which €303 related to risk taker positions and €263 to risk shedder positions. Risk taker positions thus represented 8% and risk shedder positions 7% of the credit volume of the banks taking part in the survey. It should be noted that the positions refer to the nominal values of the credit derivatives; the market value of these

transactions – as is usual for derivatives business – is far lower.

Credit default swaps are clearly the most frequently used credit derivatives; they have a share of 89% of the positions, 85% of which are in the single name area.<sup>2</sup> By contrast, credit linked notes account for only 6% and total return swaps for 5% of the positions in credit derivatives. The preference shown for (single name) CDSs is likely to be due, among other things, to the fact that these instruments are the longest established credit derivatives and those with the highest degree of standardisation.

*Credit default swaps are the most used instruments*

At the big banks, risk taker and risk shedder positions are roughly equal (approximately €220 billion each), while at the central institutions taking part in the survey the risk taker positions (€83 billion) are almost twice the risk shedder positions (€43 billion). However, the gross figures alone permit no more than a rough estimation of the credit risk. Making a straightforward differentiation between risk taker and risk shedder positions underestimates the credit risk.<sup>3</sup> To gain a picture of the actual credit risk positions, a comparison needs to be made of risk taker and risk shed-

*Net risk positions*

<sup>2</sup> "Single name CDSs" is the term used for credit default swaps which are based on a single reference obligation. If they are based on a portfolio of obligations, the term used is "portfolio CDSs".

<sup>3</sup> The difference in market values can provide information about market risk only and not about credit risk.

der positions for each reference obligation.<sup>4</sup> The Bundesbank survey gives the first insight into German banks' actual net risk positions (measured in terms of the nominal volume of the reference obligations). It showed that some 63% of the positions are matching operations; the net risk position was thus €126 billion in the risk taker position while risk shedder positions amounted to €86 billion.

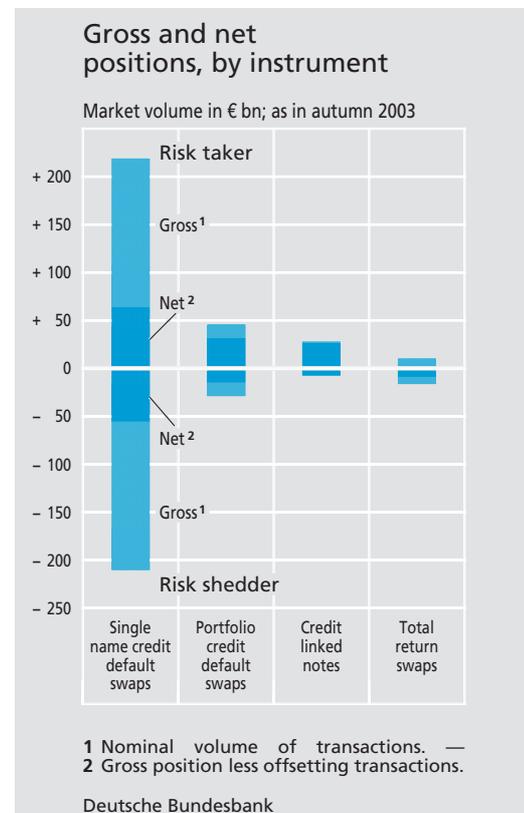
In this netting, the calculation is made at each instrument level and with no account being taken of the the corresponding balance sheet positions in the reference obligations.<sup>5</sup> If account is taken of the fact that risk shedder positions are used partly to hedge balance sheet positions, the net amounts in risk shedder positions at the big banks are reduced by €47 billion. No reliable data are available for the central institutions.

*Large share of international reference obligations*

The structure of the assets underlying the operations affords an interesting insight. It is immediately apparent that the reference obligations are not solely German or European. In fact, the big banks hold more or less equally balanced volumes of European (€93 billion) and US (€91 billion) reference obligations. This is confirmation that the credit derivatives market is an international market. Only in the case of the central institutions do European exceed US reference obligations by €17 billion.

*Most are loans to enterprises ...*

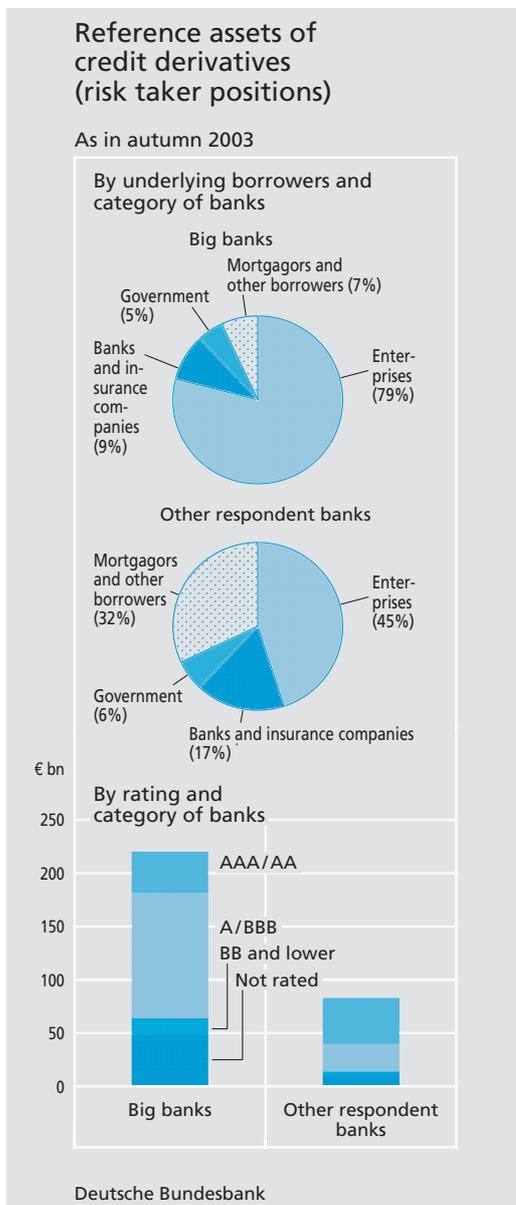
Corporate loans are the most important kind of reference obligations at the big banks and there are no major differences with regard to regional structure. At 79%, loans to enterprises were far in excess of lending to the



financial sector (9%), mortgage loans (7%) and lending to the public sector (5%). The picture is different at the central institutions. Although, here too, corporate loans (45%) are predominant, mortgage loans also have a heavy weighting (32%). Loans to the financial sector are also well above average (17%). Unlike the situation at the big banks, owing primarily to diversification requirements, the central institutions show a clear emphasis with regard to the regional and sectoral bias

<sup>4</sup> The following example illustrates this point. If a bank has risk taker and risk shedder positions in credit default swaps at the same nominal value on the same reference obligation, the bank is perfectly hedged as it can offset the payment obligations which occur if the reference obligation defaults by paying compensation from another contract. This is not the case if risk taker and risk shedder positions are based on different reference obligations.

<sup>5</sup> Open credit positions would need to be calculated, if a full calculation is the goal, by including all instruments. However, the survey did not tackle this issue because of the time and effort that would have been involved.



of the reference obligations. European reference obligations were well in the lead among loans to enterprises (61%) whereas mortgage loans predominate among US reference obligations (62%). This bias can also be explained by the fact that the Pfandbrief has already provided Germany with an established instrument permitting investment in European mortgage loans.

Overall, this corroborates the findings of other studies to the effect that the transfer of credit risk has so far been based mainly on reference obligations with good to very good credit ratings. At 82%, the share of investment grade reference obligations (at least BBB rated) at the central institutions is somewhat higher than at the big banks (71%). The share of reference obligations with top ratings (AA or above) is, at 51%, particularly striking at the central institutions, the figure being only 17% at the big banks. The large share of obligations with good ratings is in line with the strong position of credit default swaps among the credit risk transfer instruments as well as with the fact that credit derivatives are rarely used to avoid write-downs but rather primarily to limit the risks involved in large exposures. Moreover, the predominance of obligations with good ratings might also be a phenomenon of the early phases of the market.

... and good credit ratings

A key consideration is the extent to which credit derivatives are the means of transferring risk outside the German banking system. According to the Bundesbank survey, 83% of credit derivatives trade – ie the largest share – is an interbank market. The remainder is shared roughly equally between insurance companies, hedge funds and other enterprises. The Bundesbank survey, according to which the German banks conclude 67% of all contracts with foreign credit institutions, confirms the dominant intermediary position. There is so far nothing to suggest a broadly based transfer of credit risk out of the banking sector. In this connection it is interesting to note that, contrary to frequent suppos-

Derivatives trading is an interbank market

itions, (non-resident) insurers<sup>6</sup> do not feature primarily as risk takers in their operations with German banks; rather, risk takers and risk shedder positions are in balance. It is also worth noting that in this market hedge funds (which are gaining in importance) appear mainly as risk takers vis-à-vis the German banks.

*Trade concentrated at a small number of intermediary banks*

The market is typified by a high concentration of intermediary services. The Bundesbank survey showed, for example, that the four big banks hold roughly 78% of all the positions in credit derivatives of the banks participating in the survey. A survey conducted by Standard & Poor's produced similar results; worldwide, 83% of all CDSs are held by only 17 banks.

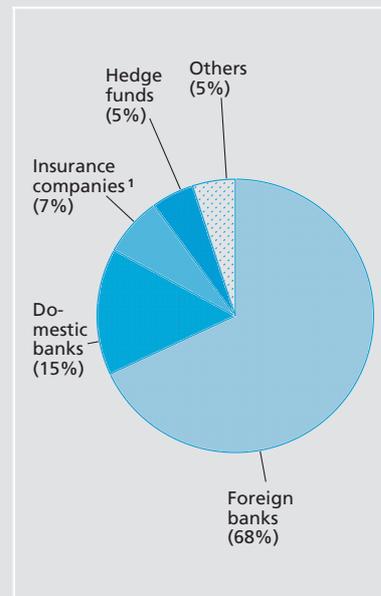
*Securitisation plays a smaller role*

Compared with credit derivatives, structured products play a far smaller role. In the case of synthetic securitisation, the overall volume of business is only €63 billion, with the big banks (€57 billion) dominating the picture. The main reason why the volume of this business at the central institutions is small is that the balance sheet structure of these banks is little suited to securitisation transactions. At €4 billion, the market for true sale securitisation is still virtually insignificant. Nonetheless, since the German market is lagging behind by international comparison and there is increased pressure for additional refinancing options to be developed, the banks taking part in the survey expect marked growth in this market in Germany.

With regard to securitisation, the matter of risk transfer between sectors is more difficult

### Counterparties of German banks in credit derivatives

As in autumn 2003



<sup>1</sup> Including reinsurance companies.

Deutsche Bundesbank

to assess as there are still hardly any reliable data on the corpus of investors, at least as far as German banks are concerned. The survey fails to confirm the occasionally expressed thesis of a broadly based risk transfer to the insurance sector. The banks nevertheless indicated that before the equity bubble burst in 2000, insurance corporations featured more strongly as investors in securitised risk. However, it is conceivable that, given an environment of low market rates, there will be a further increase in insurers' interest in invest-

<sup>6</sup> German insurers were not shown to be counterparties in credit derivatives operations with German banks. It should be noted that the assumption of credit risks by credit derivatives in the context of capital investment as a non-insurance related operation is prohibited by law. German insurers may, however, invest in asset backed securities and credit linked notes provided that they observe investment rules. There are no sound data on the exposure of reinsurers.

ment in securitisation products with higher yields as an alternative to playing the volatile equity market.

*First loss usually retained by the originator*

In this connection, it is important for the tranches with a lower credit rating, especially those which bear the expected loss (first loss tranches), to be retained, as a rule, by the securitising institution. Besides the lack of demand, the alleviation of incentive distortion through asymmetric information is significant in this respect.<sup>7</sup> According to the survey, the retained tranches amount to virtually 7% of the total volume of securitised assets in the case of securitisation transactions; some 30% of these are first loss tranches. All in all, there is thus scarcely any evidence of credit derivatives or securitisation being used to transfer the credit risk of low-rated obligations. Portfolio adjustment in the case of problem loans, which some banks insist on using, tends to occur primarily in the course of a settlement or credit sale.

### Credit risk transfer and financial stability

*Credit risk transfer markets foster financial stability...*

Developed liquid credit risk transfer markets can give a strong boost to the stability of the banking and financial system. They strengthen credit institutions' ability to manage risks since, by being tradable and marketable, credit risks can be valued more accurately, varied more flexibly and more easily diversified.

Separating credit risk off from loans makes diversification much easier. By using credit risk transfer instruments, a credit institution

can reduce its vulnerability considerably in relation to one dominant individual risk arising through relationship banking, special developments in individual industries and regions or national economic cycles. The tradability of credit risk in liquid markets also increases the speed and flexibility with which risk positions can be changed and fine-tuned. Hence, credit risk transfers also simplify managing the volume of risk-weighted assets and thus the regulatory capital.

*... through diversification and by rendering credit risk more flexible ...*

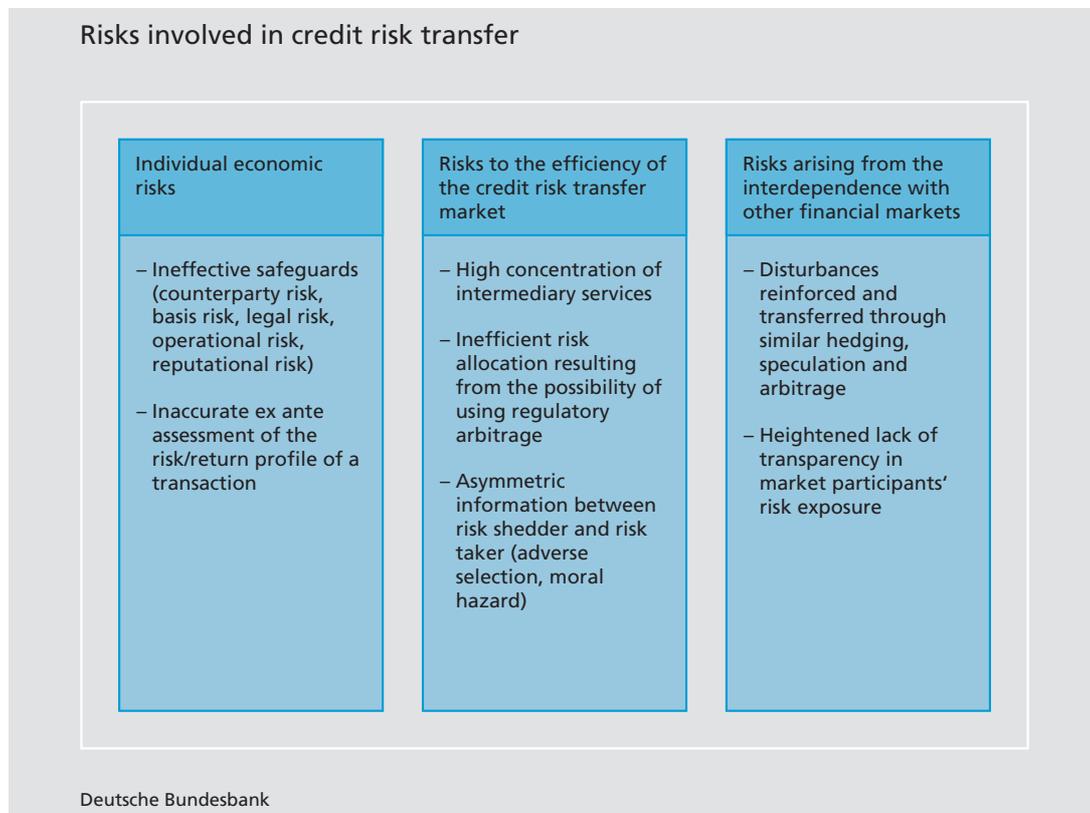
Finally, trade in credit risks improves the transparency and the quality of price-setting. The market invites more participants to contribute their appraisal to the price-setting process and pools the different opinions to create a transparent signal. For instance, the premia for credit default swaps are now a broadly watched indicator of an enterprise's or even a bank's credit quality. Furthermore, the further leeway to adjust the portfolio at any given time offers banks an incentive to deploy refined methods of risk management. The marginal analysis of modern portfolio theory, according to which the price of a risk orientates itself to the marginal amount at which the overall risk can no longer be diversified, is finding increasing acceptance.

*... as well as through transparent and efficient price-setting*

Broader diversification and more efficient price-setting improve the allocation of credit risks and consequently make a major contribution to enhancing the resilience of the banking and financial system. Of course, this also entails risks which can have a negative impact on financial stability.

*Contributing to resilience*

<sup>7</sup> For further details of the problems of asymmetric information distribution, see pp 40-41.



*Individual economic risks ...*

The conclusion of a credit risk transfer contract can give rise to two individual economic uncertainties: first, whether the risk has been transferred effectively, ie can all or part of the insured risk fall back on the risk shedder in the event of default? Second, if the transfer has been conducted effectively, what is the exact risk/return profile?

*... with respect to the effectiveness of the risk transfer...*

Causes of an ineffective risk transfer may be:

- Counterparty risk – the risk taker is not in a position financially to meet the compensation liability stipulated in the contract.
- Basis risk – two opposing hedge operations do not offset each other completely because, for instance, they are based on highly correlated but not identical refer-

ence assets or the documentation does not match.

- Legal risk – the inability to enforce a legal position if the risk taker and risk shedder are in dispute about whether a given situation is actually the occurrence of a credit event as defined in the contract or cannot agree on the amount of compensation to be paid.
- Operational risk – this includes the risks of failures in the technical infrastructure, particularly if the two counterparties have not confirmed the conclusion of a contract simultaneously.
- Reputational risk – to avoid reputational damage, originators of regularly recurrent

securitisation transactions may find cause to back a securitisation portfolio with a disproportionately high default risk rather than enforce a claim.

*... and with respect to a correct appraisal of the risk/return profile*

The risk of a systematic inaccurate ex ante appraisal of the risk/return profile of a transaction is particularly high in the case of complex products. In analysing a portfolio transaction, primarily those correlations which determine the diversification effect in the portfolio must be estimated and the characteristics resulting from the tranching must be identified.

*Quality of risk management systems affects financial stability*

Market participants can draw on a wide range of instruments to reduce both the probability of credit events occurring and the extent of their impact. This set of instruments must be deployed carefully. The quality of participating banks' risk management systems has a decisive influence on the effects of the credit risk transfer market on financial stability. The market can only develop its stability-promoting effects if individual economic risks, particularly those of the more significant market participants, are managed professionally.

*Market participants need to pay attention to transaction arrangements ...*

For example, market participants need to pay attention to transaction arrangements such as the provision and verification of collateral as well as the conclusion of netting agreements and have to proceed carefully with the still somewhat underdeveloped infrastructure of the market in the areas of settlement and documentation, for instance. In particular, they must consider the interdependence of credit events and counterparty default risk (double default). They should aim to ensure

that diversification among their counterparties is as broad as possible, in particular for each reference address, even if the possibilities are somewhat limited at the moment owing to the high degree of concentration in the area of intermediation.<sup>8</sup>

Moreover, they have to use their economic equity capital to make appropriate risk provisions. Risks arising from credit derivatives must be managed and covered in the same way as interest and currency derivatives, with account needing to be taken of the fact that credit derivatives can trigger payment obligations equal to the entire nominal amount. Special care must be taken with the appraisal of the risk involved in assuming a position. It is not enough to rely to a large extent or even completely on ratings because ratings are uni-dimensional features and by their very nature cannot be ascribed a definite risk/return profile. As a result, the question is raised time and again as to whether less experienced market participants have enough risk management resources to appraise and manage the risks they incur.

*... and make appropriate risk provisions with equity capital*

The cautious conclusion that can be drawn from the survey responses is that German banks' risk management systems are of a relatively high standard, which is possibly due in part to the advanced state of preparations for the new Basel Capital Accord.

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<sup>8</sup> Interestingly, a rating agency does not substantiate its advice to avoid exorbitant amounts per reference address with a single counterparty by referring to counterparty risk but rather to legal risks, since the incentive for the risk taker to lodge an appeal against the obligation to deliver increases commensurately with the amount of money involved.

## Possible efficiency shortfalls in the functionality of the credit risk transfer market

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In addition to individual economic risks, possible efficiency shortfalls in the credit risk transfer market can also result in risks to participating banks.

*High concentration in the area of intermediation ...*

The most prominent source of risk is the high degree of concentration in the area of intermediation, a fact also confirmed by the Bundesbank survey. For many reasons, the high degree of concentration can be seen, to an extent, as inherent in the market. For example, the complexity of intermediary activities requires sophisticated risk management systems, the development of which represents significant fixed costs. Furthermore, the trading systems need to be working at a high capacity in order to benefit from returns to scale. Finally, the market for the intermediation of credit risks is probably also hard to contest because once an expertise advantage has been gained, it is reinforced through endogenous learning processes and because solid creditworthiness is the criterion determining acceptance as a counterparty. Moreover, the term "intermediary" should not be taken to imply that these banks merely pass on credit risks. Intermediation includes transformation functions as well as a market maker role, as a result of which open positions of considerable magnitude and substantial basis risks may arise.

*... bears liquidity risks*

The disadvantage of the market structure with only a few dominant banks holding large market shares probably has relatively lit-

tle to do with direct counterparty risk, which is revalued and covered on a daily basis. The real risk lies in "second-round effects" resulting from the influence of individual decisions on market conditions. High market concentration can easily give rise to an illusion of liquidity – because of the correspondingly high turnover and consistent, long-term price movements. However, a sudden change in behaviour on the part of just one big intermediary bank – for instance, exiting the market following a shift in strategic orientation or a rating downgrade, which undermines its intermediary role – can have a considerable impact on the market. Any losses triggered by such moves could force individual market participants to sell other valuable securities in order to meet their additional funding obligations. Selling pressure can have a knock-on effect on other financial markets and other market players.

The high concentration, which is generally characteristic of other derivatives markets too, is unfavourable from a financial stability point of view. Although concentration on a few institutions with specific expertise and generally refined risk management systems is likely to reduce the probability of a credit event occurring, there is a parallel marked increase in potential systemic damage resulting from market disturbance – such as a participant exiting the market or a temporary performance "blip". The survey supports this view. Market participants view a potential withdrawal from the market by one of the large intermediary banks as a serious short-term liquidity risk, although they feel that the

*High concentration unfavourable to financial stability*

market would remain resilient in the medium term.

*The undermining of efficient risk allocation by regulatory arbitrage ...*

Whereas the risks involved in a high degree of concentration relate to the intermediation process, regulatory arbitrage can lead to inefficiencies in the ultimate allocation of credit risks. Risk allocation is inefficient if risks end up systematically with parties which have relatively little knowledge or experience of dealing with risks and/or have only a marginal equity capital buffer to absorb unexpected losses. Cross-sector regulatory arbitrage can trigger inefficient risk allocation. In this scenario, credit risks would move away from banks to less regulated financial players, the intention being to circumvent the requirement of covering risks with equity capital as stipulated by supervisory law.

*... bears risk ...*

Although the market process itself can, in principle, correct the emergence of inexperienced participants by penalising poor risk management with losses, in order to avoid this vital sanctioning mechanism generating any systemic risk to the efficiency of risk allocation, market participants need to hold sufficient equity capital against their risk exposure. In this connection, individual banks have repeatedly expressed their uneasiness with the role of the monoline insurers. They are comparatively less capitalised and it is difficult to appraise their risk positions.<sup>9</sup>

*... but is not an urgent problem at the moment*

The concern that the credit risk transfer market will become a gateway for regulatory arbitrage across all economic sectors does not appear all that urgent at the moment. The volume of net transfers from the banking sec-

tor is comparatively low. Moreover, in many countries a clear shift took place a long time ago, particularly in the area of corporate financing, from bank loans to market financing through shares and debt securities. The sectoral breakdown of risk from corporate financing is determined essentially in the spot markets. The credit risk transfer market provides only a limited expansion of the ways of changing this sectoral "primary breakdown".<sup>10</sup>

Asymmetric information is another possible source of efficiency problems.<sup>11</sup> In the context of insurance contracts, this means that the risk shedder is in a better position to assess the risk (the probability of an insurance event and/or the amount of potential loss) than the risk taker. This asymmetry results in adverse selection. Demand for insurance protection arises particularly for bad risks. As a result, a high market price is generated in anticipation of this adverse selection. The efficiency issue gains in importance if the risk taker can influence, through the degree of caution exercised, the probability of an insurance event arising or the amount of loss. The market result then depends on the extent to which "moral hazard" can be minimised through

*Asymmetric information can lead to adverse selection and moral hazard*

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<sup>9</sup> Monoline insurers emerged in the United States in the 1970s. Their original business was to guarantee the payment obligations arising from bonds issued by central, state and local governments. Over the years, monoline insurers have become increasingly involved in the ABS and CDO markets. They typically assume the position of risk taker for super senior tranches, which come last in the line of obligations to make contingent payments.

<sup>10</sup> Furthermore, it should be borne in mind that structured products themselves increasingly cover marketable debt securities and not necessarily bank loans.

<sup>11</sup> For a detailed account of possible incentive problems caused by asymmetric information, see J Kiff, F L Michaud and J Mitchell, An analytic review of credit risk transfer instruments, in Banque de France, *Financial Stability Review*, June 2003, pp 106-131.

supervisory activities or through regulations concerning the percentage share of the costs.

*Information asymmetries in the credit risk transfer markets*

In the credit risk transfer markets the theoretical argument of adverse selection could apply to how investors structure their portfolios.<sup>12</sup> A moral hazard problem might arise if banks reduce their efforts to monitor the business developments of their borrowers, paying more superficial attention to their credit quality, or that, anticipating a credit risk transfer, they exercise less caution when deciding to grant a loan. There are, however, many ways of minimising incentive problems: for instance, information asymmetry can be actively reduced as part of a disclosure process. The originating bank can retain a first loss position, which serves as a “deductible” amount. A similar effect arises from the need to enjoy a good reputation in the market, with the result that current contracts influence the risk premium of future transactions. The dynamic development of both the credit risk transfer market and spread trends support the view that most of the problems arising from asymmetric information can be solved or at least adequately constrained.<sup>13</sup> Recent adjustments in the way contracts are structured have probably contributed to this as well.

*Incentives to restructure debt*

Banks which have concluded a credit risk transfer contract may encounter major incentive problems when deciding to restructure their claims vis-à-vis defaulting borrowers. Depending on which side of the market a bank is on (risk taker or risk shedder) and how long the residual maturity of the existing contract is, there are incentives to facilitate,

accelerate or delay debt restructuring. The modalities of the contract determine the incentive effect. They cover, for instance, the extent to which the documentation classifies restructuring of debt as a credit event and include provisions governing settlement. The latter can trigger an incentive to shape debt restructuring in such a way as to drive a wedge between the development of the assets on the one hand, which determines the contingent payments, and that of the original receivables on the other, which determines the effective loss incurred by the risk taker. The variety of interests which can trigger comprehensive contractual relations arising from a credit risk transfer further complicate debt restructuring negotiations.<sup>14</sup>

### Interaction between credit risk transfer markets and other financial markets

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The credit risk transfer markets have features which are typical of the derivatives markets. The high concentration of market participants as intermediaries has been outlined above. At the same time, derivatives markets offer investors the possibility of exercising

*Credit risk transfer market a potential accelerator of disturbances, ...*

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<sup>12</sup> The Federal Financial Supervisory Authority has imposed on issuers of ABS products the obligation to ensure that securitised claims reflect a representative average of the corresponding segments in the balance sheet.

<sup>13</sup> From the perspective of the more “traditional” theory of intermediation – according to which the core task of banks and other financial intermediaries is to monitor borrowers in a cost-efficient manner – transferring credit risk away from the originating bank appears to be fundamentally paradoxical. By contrast, the “modern” theory of intermediation – according to which the function of financial institutions is to take on risks, rebundle them, arrange them and pass them on – sees no problem in integrating the establishment of credit risk transfer markets.

<sup>14</sup> See Committee on the Global Financial System, *Credit risk transfer* (2003), pp 20-22.

considerable leverage, ie with relatively little capital they can assume a position which combines a high potential return and high risk. Finally, the derivatives markets are closely linked with the underlying spot markets as a result of hedging and arbitrage strategies. The combination of these features can result in disturbances in the underlying spot markets spilling over not only to the derivatives markets; they may pick up speed in the derivatives markets and bounce back to the spot markets. If a number of market participants pursue similar hedging strategies, an unanticipated price movement in the spot market can have a devastating effect on the supply/demand relation in the derivatives markets, with a corresponding impact particularly on highly leveraged investors.<sup>15</sup>

*... a vehicle  
for speculative  
short  
positions ...*

In particular, the existence of credit derivatives markets makes it easier to enter into short positions, ie to speculate on a deterioration in an enterprise's credit quality. The transaction costs involved in going short are lower because the position can only be entered as risk shedder. However, a short position requires that securities be borrowed in the spot market, for example, through simultaneous repo transactions. Any speculative attacks aiming to benefit from an enterprise being downgraded by rating agencies are likely to operate via the market for credit derivatives.

*... and as a  
channel for  
transferring  
exaggerations*

The credit risk transfer market could also serve as a channel to reinforce an optimistic "mood of exuberance" in the financial markets. Arbitrage CDOs play a particular role in this respect. Their construction aims to exploit

differences in interest rate premia between various credit rating classes. They generate securitised paper with a high credit quality from a portfolio of individual loans with a low credit quality by exploiting the diversification effect and particularly by offering collateral as coverage.<sup>16</sup> The increase in such arbitrage CDOs has recently fuelled demand for corporate bonds with a sub-par credit rating, which may have led to a considerable squeeze in the yield premia between various credit rating classes in the bond markets.

The list of criticisms of the credit derivatives market mentioned earlier merely accentuate the downside; however, this market involves comparatively low transaction costs and has a high degree of information efficiency. This is important since this is where the price-setting process – including possible exaggerations and volatilities – primarily occurs. Hence the somewhat greater volatility of the credit derivatives market vis-à-vis the bond markets is not necessarily a valid argument against its use.

*Function in the  
price-setting  
process*

The existence of credit risk transfer markets makes a turn to credit risks particularly attractive to hedge funds. Their increasing involvement is having an effect on the market. First, they shift demand towards higher risks. Second, they increase liquidity in the market – not only through the sheer gross amounts of their positions, but even more

*Role of  
hedge funds*

<sup>15</sup> See International Monetary Fund, How Effectively Is the Market for Credit Risk Transfer Vehicles Functioning, in *Global Financial Stability Report*, March 2002 pp 36-47, especially pp 43-44.

<sup>16</sup> See J D Amato and E M Remolona, The credit spread puzzle, in *BIS Quarterly Review*, December 2003, pp 51-63.

through the frequency of the transactions. The market changes which result from an increase in hedge fund activity cannot be pinpointed with respect to financial stability. Increased liquidity and more variety among participants is specially welcome given the high concentration in the market. A growing market share of higher risks of transferred nominal volumes could enhance the diversification advantages and increase the degree of diffusion of credit risks in the financial system. However, hedge funds are often highly leveraged and are therefore particularly susceptible to the effects of abrupt price movements.

*Credit risk transfer exacerbates lack of transparency in the risk situation*

With regard to financial stability, it is troubling that the credit risk transfer markets, at least for the moment, reduce the level of transparency in the financial markets. In particular, balance sheet data and ratios lose more of their informational value. First, the effective credit risk positions are more difficult to estimate. Second, as the market develops, many institutions may tend to experience a shift in the risk categories away from a relatively precisely definable credit risk to categories which are more difficult to assess such as legal risk, operational risk, reputational risk and liquidity risk. This growing lack of transparency not only makes the work of the supervisory authorities more difficult, it also detracts from the disciplinary function of the market. The issue of transparency takes on a new dimension through the variety of participants in the credit risk transfer market. As a result, generating more transparency encounters a host of familiar problems such as insufficient data at reinsurers, the closed nature of hedge funds

or the role of offshore financial centres as a legal domicile of funds and financing enterprises.

## Overall assessment and outlook

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The credit risk transfer market has the potential to strengthen the resilience of the banking and financial system. It has passed the litmus test of the past recession with the attendant rise in credit risks and credit events. Market liquidity did not suffer and legal risks did not become more pronounced.

*Credit risk transfer market has passed the litmus test of the past recession*

Full exploitation of the potential to promote stability, however, is dependent on some requirements being fulfilled. In particular, sufficient capital coverage is required for the assumed risks as well as professional risk management on the part of the market players. The quality of market participants' risk management systems must keep pace with the volume and complexity of their investments. Otherwise, the liquidity risk, which arises mainly as a result of the high concentration in the intermediation of credit derivatives, can endanger financial stability.

*Requirements for stability-promoting contribution of credit risk transfer*

The Bundesbank will continue to observe the growing use of the new instruments and monitor the suitability of the risk management systems in place. Following the implementation of Basel II, this will become an essential part of the supervisory review process.

*Role of the Bundesbank*

At the national and international level, many approaches focus on improving transparency and tightening disclosure obligations. This is

*Transparency and disclosure*

particularly important with respect to the high concentration of the credit risk transfer market on a relatively small number of participants. At the end of this year, the Federal Financial Supervisory Authority will launch a regular, quarterly survey on the use of credit risk transfer instruments at selected German banks. The information obtained through the survey by the Banking Supervision Committee (BSC) of the European System of Central Banks, on which this report was based, will be used to help to design and carry out the future survey. At the same time, it will take account of international requirements since the G10 central banks have decided to extend the semi-annual derivatives statistics compiled by the BIS to include data on credit default swaps. However, in addition to achieving greater disclosure to supervisory authorities, the market must be given a better basis of information if it is to fulfil its disciplinary function.

*Medium-term  
impact of  
Basel II*

In the medium term, the reform of the minimum capital requirements enacted by Basel II will have an influence on the credit risk transfer market. First, the new rules foster the further development and improvement of risk management systems. Second, Basel II will correct the hitherto insufficient differentiation of the prudential capital requirements according to risk. The current discrepancy between

economic and regulatory capital offers banks an incentive to separate good risks from the balance sheet and transfer them to the market and, vice versa, to retain bad risks in the balance sheet. Accordingly, the introduction of Basel II should foster two tendencies in the credit risk transfer market: a larger number of participating banks with more sophisticated risk management systems and a rising share of sub-investment credit ratings among those credit risks being transferred.

Just how radically the banking business and its strategies will change as a result of developments in credit risk transfer remains to be seen. Credit risk transfer will assume an increasingly important place in many credit institutions' business policy, albeit to a varying extent depending on their position in the various markets. Of particular macroeconomic importance is the extent to which the increasing marketability of credit risk can influence the credit and economic cycles. On the one hand, bank lending may become more volatile through the closer integration with "nervous" financial markets. On the other hand, the marketability of credit risk increases banks' flexibility in dealing with credit risk and therefore facilitates the control of the equity capital ratio by outplacing bank loans. This could lead to a smoothing in lending practices.

*Carry-through  
of macroeconomic  
effects  
still to be seen*