

Demystifying Banks' Use of Credit Derivatives

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The pace of innovation and the volume of activity in credit derivatives are heating up. These instruments promise to become a significant force in risk management for banks. Over the next decade, they will transform credit markets. But as promising as the credit derivative technology is, it is not yet a panacea for the credit problems of banking systems around the world. It has not, as is commonly believed, helped banks avoid meaningful amounts of losses in the credit cycle just ending now. Standard & Poor's Ratings Services estimates that of the \$3 trillion total notional amount of credit derivatives outstanding, only about \$100 billion represents a transfer of credit risk from banks' lending and trading activities to other market participants. The remainder represents the dealing books of the 15 dealing banks that dominate the business, and, to a much lesser extent, investments in credit risks by banks and insurance companies. These dealing banks—both the universal banks and the investment banks, split between the U.S. and Europe—enter into credit derivatives trades largely as a client service and then seek to lay off the risk. The open question is whether they are in fact completely hedged and whether there is not some portion of the business that represents proprietary trading in a now attractive, tradable asset class.

Another aspect of the credit derivatives business that has limited the amount of risk transferred away from the banking system is that the risks that can be protected with credit derivative swaps (CDSs) are largely investment grade. This appears to have the effect of shifting the remaining risks in the banking system further toward the riskier, noninvestment-grade range of the spectrum.

Credit derivatives can also be used to express a view on credit risks. For institutions that take on credit risk, the liquidity and convenience as well as the pricing of the credit risk is an attraction. While the type of risk is not new or unknown, it is largely unfunded and undisclosed, which could allow some players to become leveraged in a way that outsiders or even senior management might not be aware of.

Credit derivatives, in their increasingly complex forms, will clearly pose challenges to accounting standards, regulators, and analysts. Standard & Poor's Ratings Services will evolve its criteria for analyzing the banks and insurers who make use of credit derivatives as the markets develop and become more material in their impact on those institutions. Credit derivatives are a key tool in the dynamic portfolio management that is growing in importance in the global banking industry. Increased use of derivatives and other risk-transfer techniques will redistribute credit risk within the banking system as well as redirect it outside, notably to the insurance sector, investment funds, and hedge funds. For Standard & Poor's, the criteria issues in dealing with extensive users of credit derivatives will vary depending on the type of structure: single-name CDSs or structured vehicles and basket trades that involve a waterfall of payment streams. Standard & Poor's will also be evaluating the ramifications for the financial services industry as credit risk becomes managed in more dynamic ways and is channeled away from banking into other sectors.

Tradable Risks Still Largely Investment Grade

The reason why there has not been as much of an effect on bank credit risk from the apparently large volume of credit derivative activity (\$3 trillion in

notional amount of CDS contracts at March 31, 2003, according to Standard & Poor's research) as has been alleged is two-fold. First, the \$3 trillion number is deceptive in that it does not represent hedging for banks' own portfolios. In addition, the risk that is being traded in the form of CDSs is largely investment grade, so that the amount of losses they have helped banks avoid is quite small. In any case, the \$3 trillion number pales before the aggregate loan and bond portfolios of the global banking system, which total approximately \$29 trillion and \$5.5 trillion, respectively. Standard & Poor's research indicates that 83% of all CDSs, or \$2.4 trillion of notional amounts, are on the books of 17 commercial banks and investment banks. Of these, the U.S.-based institutions have about 50%, and European institutions have the other 50%. These are generally the same institutions that are major dealers in all other types of derivatives (see table).

Publicly Available Data on Volume of Credit Derivative Activity			
(Bil. \$)	Protection Bought (Notional)	Protection Sold (Notional)	Total Bought and Sold
J.P. Morgan Chase & Co.	217,173	191,623	408,796
Citigroup Inc.	68,768	70,502	139,270
UBS AG	N.A.	N.A.	128,000
Commerzbank	50,116	45,116	96,741
Bank of America Corp.	67,398	39,832	107,230
Banca Intesa SpA	43,316	43,063	86,379
Dresdner Bank AB	37,909	35,770	76,655
Hypovereinsbank	N.A.	N.A.	71,378
Westdeutsche Landesbank (WestLB)	N.A.	N.A.	53,676
HSBC Holdings	N.A.	N.A.	17,405
Barclays	N.A.	N.A.	31,188
Wachovia Corporation	9,524	5,852	15,376
HSBC USA Inc.	7,790	8,466	16,255
Bank One Corp.	9,950	2,353	12,303
Fleet Boston Financial Corporation	5,332	3,615	8,947
MTFG	4,078	2,881	6,959
LaSalle Corp.	6,272	N.A.	6,272
HSBC Bank	N.A.	N.A.	6,525
Banca Monte dei Paschi di Siena SpA	2,464	2,406	4,870
Wells Fargo & Co.	2,332	2,426	4,758
Mizuho Holding	169	4,262	4,431
Source: Publicly available data. N.A.—Not available.			

It is commonly believed that the commercial banks using credit derivatives are mainly trying to hedge their own risks. In fact, commercial banks are similar to the investment banks in that they use only a small portion of their large holdings of CDS contracts to hedge the credit risks in their own loan, bond, or trading books. Most of their holdings represent offsetting positions of protection bought and sold. For example, J.P. Morgan Chase & Co., the largest dealer in terms of total notional amount of contracts, states publicly that of its \$366 billion of contracts, only \$34 billion at year-end 2003 were used to hedge its own balance sheet, and of those hedges, synthetic CDOs represented \$10 billion. Those among the top 15 banks who separated their dealing books from their so-called banking or hedging books held between 5%-10% (7% on average) in their banking book. As far as the rest of their books are concerned, these banks are acting mainly as dealers, making markets for their clients on both the long and short sides of the market.

Because the risks traded in the CDS markets are 90% investment grade, CDSs have not helped banks escape much in loan losses. Even the largest institutions report only about \$200 million-\$300 million apiece in losses recouped through CDS hedges over the past few years, which pales before the total amount of corporate loan losses suffered by these same institutions. That amount of risk protection was not enough to have made a difference in overall loss experience during that time. Structured transactions have transferred more risk, but it is arguable that banks only entered into the client transaction because they were able to do so on a hedged basis. For the market to become a significant force in moving risks away from banks, a noninvestment-grade market would have to become deeper. There is some evidence that this is occurring, at least in the U.S. In Europe, the profile tracks that of the syndicated loan market, which is also focused on investment grade to a larger extent than in the U.S. In Germany, there are restrictions on selling protection on small and midsize enterprises (SMEs).

One reason that the noninvestment-grade area has not grown rapidly is that the contracts are often expensive relative to the alternative strategy of simply buying or selling a loan. One situation in which CDSs have defeased risk is when protection was bought against investment-grade names that subsequently became "fallen angels," as in the case of Enron Inc., Marconi Corp., Adelphia Communications, or WorldCom Inc. They are also useful in managing down single-name concentrations of credit risk exposure. For example, one strategy often cited by investment banks is to use CDSs to sell off the credit risk of as yet undrawn backup liquidity lines, which can represent large and lumpy exposures for them. These concentrations of single-name exposures have built up in part because of the consolidation that has occurred in the global financial system, leaving a paucity of banks in the food chain to which risk can be distributed (see the commentary article "The Syndicated Loan Market: A Changing Arena" on RatingsDirect).

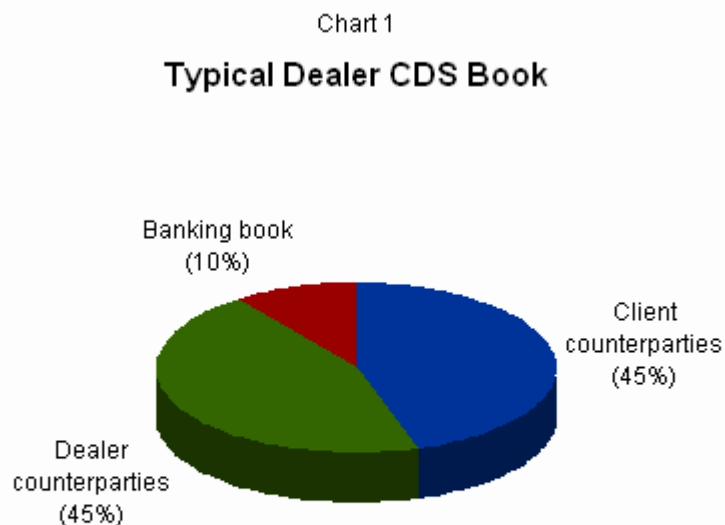
Hedging a Dealing Book

The real issue involved in analyzing these dealing banks is to determine the degree to which they are hedged in their dealing books. This is not as simple as calculating the difference between protection bought and protection sold. To use an extreme example, it is theoretically possible to be long one set of reference entities and short a completely different set, so that while the difference between the amount of protection bought and sold is zero, the actual amount of unhedged positions is the sum of the two. Also, not all CDS positions are hedged with derivatives; instead, they may be hedged with bonds or other instruments. Thus, while the dealing banks are generally long credit, with up to \$25 billion more protection sold than protection bought in their dealing books, it is not the most accurate depiction of their risk. The only way to be completely hedged is to be long and short the same reference entity with minimal basis risk and with creditworthy counterparties. Naturally, some of the long or short positions could be expressed in terms of cash instruments such as bonds. Standard & Poor's has found that this is not necessarily the way the dealing banks analyze their own positions.

Many banks tend to put CDSs in the same value-at-risk (VAR) framework as other traded instruments. That is, there is a focus on the market values of the CDSs, their volatility, and their correlations with other contracts. Portfolio analytics give credit not only to long and short positions as offsets but to imperfect correlations as well. When banks are unable to demonstrate that they are in fact hedged in the literal sense described above, the suspicion is that at least to some extent they are relying on correlation analysis to achieve stability in the mark-to-market pricing of the portfolio. In addition, when focusing on minimizing the VAR calculation for the portfolio, they often emphasize hedging only the contracts that have the greatest impact on the total VAR calculation. The problem is that swap spreads on a particular name can remain relatively stable for a long time and then change dramatically if the creditworthiness deteriorates. Simply looking at long and short positions on the same reference entity, we see some sizable open positions in the dealer books.

Another issue is that while market value and potential changes in market value do not generally come close to the notional amount in other types of derivatives, that is not the case with CDSs. Put another way, it is in fact possible for a protection seller or buyer to lose (or gain) the entire notional value of a CDS if the reference entity defaults and there is no recovery value to its obligations. The notional amount, like a loan equivalent amount, is a useful yardstick of potential loss. For other derivatives, the issue is a price change in the underlying instruments rather than a loss of principal. The market value approach has more relevance and similarity to other credit derivatives in the case of a counterparty default while the reference entity is still healthy, when a protection buyer suffers a loss if an unfavorable price move in the underlying instrument has occurred. The amount of the loss is only the amount of the price move and is likely to represent only a small portion of the notional amount. Of course, market value fluctuations that are not due to default also constitute risks. For example, the market value of the contracts reflect sensitivities to moves in credit spreads (DV01), nonlinear movements in prices, and so forth, and can create volatility in trading income, so that these must be hedged as well.

To the extent that dealers are hedged, they should be seen mainly as intermediaries in a chain of risk transfer, swapping risks in large part with each other in order to hedge themselves. Standard & Poor's has found that dealers typically have their dealing book almost evenly split between contracts with other dealers in the interdealer market and contracts with clients (see chart 1). This is a situation not unlike that found in other types of derivatives activities, and one that is perfectly appropriate in market-making operations. It also means that the profits on this perfectly matched book of business are effectively a bid/offer spread or commission collected on a trade—a low-risk and relatively stable earnings stream. It is extremely difficult to unravel how much of even the contracts with clients actually represents risk transferred from one end user to another. It is possible that a trade initiated by one end user could trigger a chain of trades between dealers and their clients before it reaches the end of the chain.



However, if we assume that CDS portfolios of financial institutions that are less than \$30 billion in notional amount do not represent dealing books, and we add them to the parts of the larger players' portfolios that they have designated as being used for hedging or investing rather than dealing purposes, the total is only about \$500 billion. That would represent the

amount of derivatives that financial institutions use as an end user. That \$500 billion can be boiled down to only about \$150 billion in net protection bought by banks if one subtracts protection sold from protection bought. Furthermore, about \$50 billion of the protection bought is in the form of sales of CDOs, of which the banks tended to keep the riskiest tranches so that little risk can be said to have been transferred. Thus a better indication of how much risk might have been transferred out of the banking system might be about \$100 billion in the form of single-name CDSs.

One of the issues that the inter-dealer business brings up is the amount of concentration of counterparty risk. It is not at all unusual to find exposures to a single counterparty of \$4 billion-\$5 billion (or even more) in their credit derivatives books. This poses interesting questions of systemic risk, not to mention risk of large losses if one of the dealers were to experience financial stress. Assuming the CD market is efficient and liquid, most losses would be limited to the mark-to-market on the contract upon which the failed counterparty is a provider of protection. It may set off a scramble to replace the hedges, however. If on the other hand the failure of a counterparty would occur at the same time as a major reference entity, the losses could skyrocket. In some but not all cases, there is right of offset for all in- and out-of-the-money derivative contracts, so that contracts on which the bank owes the counterparty money can be netted against the counterparty's liability on CDSs. In some cases as well, the contracts are collateralized. Standard & Poor's views the management of counterparty risk in a holistic fashion, taking into account the ability to net and collateral availability and including it with other exposures to that institution.

End Users of Risk Transfer

Other players besides dealing desks of banks are much smaller participants in credit derivatives. There are 10 banks and insurance companies with \$20 billion-\$50 billion of outstanding contracts. Other rated banks and insurers' exposures tail off substantially from there. The banks and insurers that Standard & Poor's has talked with follow a variety of strategies. Some both buy and sell protection, buying protection on names in their own portfolios while enhancing the diversification of their loan portfolios by selling protection on other reference names that they would ordinarily not have access to in the loan markets. This also has the effect of helping with "paying the freight" on the hedge portfolio. Regional banks, with the exception of a very few (notably the Italian regional banks and the Landesbanks in Germany) tend to be net purchasers of protection, although not to any large extent.

The net sellers of protection find the asset class provides an attractive return for low-risk investments. This has boosted trading income for investing banks, such as the Italian regional banks, that keep the CDSs in their trading portfolio. In addition, some regional banks also invest in structured products. The risk is higher for those that invest in subordinated tranches of structured products, representing concentrated risk on a larger pool of assets. Standard & Poor's concern is that some may not fully understand the risks. One small bank, for example, sold credit-linked notes to customers whom it later chose to make whole on their losses out of relationship considerations.

Insurance companies are reputed to be the end-providers of credit protection. Indeed, Standard & Poor's has found that they are net providers of credit protection through CDSs. Most of their exposures, however, tend to be in the form of CDOs and basket trades, but these are almost exclusively of the 'AAA' or the so-called "super-senior" tranches of these structures, the second loss positions or, in the case of the monolines, providers of insurance wrap protection on the senior tranches. Such tranches cannot be said to be intended to absorb risk. That is not to say that some insurance companies may not have ventured into this area without properly understanding the risks. The recent losses on CDS at SCOR illustrate the issue. Generally, however, insurance company exposures are not large relative to their size. Most recently, insurance companies have been pulling out of the credit derivatives business as more efficient pricing has reduced the potential for arbitrage

profits.

This raises the question of where the risk has gone. If it has not been transferred from banks to insurance companies, then to which other sector? It is possible that a large portion of the risk has remained with the dealing banks who sell more protection than they buy. Funds are also known anecdotally to be buyers of risk both in the form of CDSs and as subordinated tranches of structured transactions.

Structured Products: A Major Force in the Market

Credit derivatives can be seen as falling along a continuum of products ranging in complexity from the single-name default swap to the basket trades to the portfolio deals involving a structured securitization in which the credit risk is concentrated in subordinated tranches or embedded credit default swaps. While smaller than the CDS market, CDOs, both funded and synthetic, are a major force.

One issue for those who wish to hedge has been the small sizes of the single-name swap transactions available. These transactions, generally \$20 million-\$50 million, have not been sufficient to offset really large loan concentrations. Basket trades, which use index products such as Trac-x or iBoxx, can be an efficient way of buying in bulk. However, when banks have wanted to hedge large exposures, they have resorted to customized structured deals. Some of these are structures that issue credit-linked notes providing protection to the issuers on single names or baskets. Often, one can argue whether these large structures are meant to lay off risks that exist on balance sheet or whether the ability to simultaneously take and lay off risk permitted the exposure to occur in the first place.

Unfortunately, although disputes have been infrequent in the case of the smaller single-name contracts, they have been more common when the sums in question are large, e.g. the \$500 million in Enron protection purchased by Royal Bank of Canada from Rabobank Nederland, or the \$1 billion Enron-related surety bonds or LOCs purchased by J.P. Morgan Chase. The possibility of such disputes tempers Standard & Poor's view of the exposure protection provided.

Structured products that pool assets and issue high-grade notes to one set of investors by providing credit enhancements (usually in the form of subordinated, noninvestment-grade tranches of debt sold to another set of investors) form another large component of the credit derivatives market. They have the added benefits that they do not produce counterparty risk for the protection purchaser the way single-name CDSs do. In addition, many structures accept noninvestment-grade assets that are not readily traded in the CDS markets. There are about \$500 billion of cash CDOs and another \$200 billion of synthetic CDOs outstanding globally, according to Standard & Poor's database. The pools of assets upon which they are based are larger than that, as some 'AAA' and super-senior tranches do not get funded or rated. However, a large proportion (\$126 billion) of the cash CDOs are so-called arbitrage CDOs, essentially funds created either as a vehicle with which the bank hedges its trading portfolio or as investment vehicles for outside investors for which a bank collects a fee and sometimes a gain on sale. They do not sell off assets from the bank's balance sheet but rather assets assembled for the express purpose of organizing the structure. Only the subordinated tranches actually transfer risk, and they are a small part of the entire deal. For example, there are \$3.5 billion of noninvestment-grade tranches (not including equity or unrated portions that are not sold) in U.S. cash CDOs out of \$1.3 trillion of total CDO securities. Only \$9.1 billion of the \$200 billion synthetic transactions are unrated or noninvestment-grade rated securities.

Standard & Poor's does not believe that substantial risk has been transferred away from the banking system through these vehicles. This is because the

banks wind up keeping many of the first-loss pieces of the deals; reserve accounts and spread income generated by the assets are the first to feel any shortfall in cash flows, and these represent resources that belong to the bank if they were not used to cover credit losses. In addition, many banks hold the equity and other deeply subordinated tranches. If losses had been transferred away, one would expect to see defaults on subordinated tranches in periods of increasing corporate defaults. In fact, only nine tranches have defaulted in the past two years of high corporate default levels, accumulating to \$120 million. Again, that is not a significant amount of loss deflection for the banking system.

Nevertheless, it is interesting to speculate about who buys the credit derivative portions of these and other securitization structures. According to Standard & Poor's research, it is not the insurers or reinsurers: they hold primarily the 'AAA' or investment-grade tranches. The same is true of CP conduits and "CDOs of CDOs," or CDOs that buy structured securities. Indeed, there is no dearth of buyers for the highly rated tranches because they can serve as liquidity reserves for banks or collateral for special-purpose vehicles and so forth. As far as the noninvestment-grade tranches are concerned, Standard & Poor's is anecdotally aware that, aside from the originators of the assets themselves, hedge funds have a penchant for these tranches.

Instruments of Change

The credit derivative markets have not helped banks escape the ills of credit cycles. Why has the performance of banks been as good as it has been throughout this era of heightened corporate defaults? Part of the issue is that at least in the U.S., the U.K., and Australia, the banks are highly profitable, which has helped them absorb losses on loans with relative ease. The other positive factors have been that capital and reserves going into the cycle were high. Perhaps most important of all, corporate lending is less of a major concentration for most of the banks than it was 10 years ago. In fact, many corporate lenders balance their commercial portfolios with high proportions of residential loans—a departure from a decade ago. Higher levels of reserves, capital, and earnings have also helped.

However, CDSs are transforming credit markets. Loan markets are converging with bond markets in part because CDSs can essentially liquefy credit risk. CDSs divorce funding decisions from risk-taking decisions in that players (such as hedge funds) who do not necessarily want to fund illiquid risk can still express a view on credit risk for a relatively small amount of cash. This broadens the range of players willing to participate in credit markets of all kinds. CDSs also divorce the client relationship from the risk decision. A financial institution can now satisfy a customer demand for a loan commitment but lay off the risk, a fact that has paved the way for investment banks to participate in the loan markets. On the other hand, insurance companies, traders, and hedge funds have a new, low risk (although leveraged) asset class to invest in. Liquidity is further encouraged by the pricing transparency offered by the new pricing benchmark being set by CDSs.

These developments in the market are changing the way banks manage their lending to large corporate borrowers. Derivatives and the more liquid markets they encourage make possible a new discipline at commercial banks, that of "active portfolio management." The idea is to apply analytics to loan portfolios to determine the relative values of owning alternative credit asset classes; unwanted credit risks can be divested in a variety of forms, through hedges or purchases of insurance as well as outright sales in the secondary markets. Nor will minimizing credit losses necessarily be the only consideration; taking a view on improving or deteriorating credit and credit spreads could also become a strategy. In other words, loan portfolios will presumably no longer be static; rather, they will be optimized for maximum returns, much like a bond fund.

As this concept gains a foothold, and as the credit derivatives market grows, it

will pose analytical challenges for bank accountants, investors, and regulators alike. Accounting and disclosure standards are not keeping up with the developments. The issues are not as simple as merely recognizing hedges as reductions in exposures because derivatives frequently do not hedge the risk completely, or they give rise to new risks. Beyond financial analysis, there are broader issues of how wholesale banking will be changed. Does the concept of managing credit risk through an active buying and selling program loosen the ties between banks and their customers? Does the notion that banks are no longer suited to retaining or managing credit risk mean that they have relinquished a core competency and entered a new phase of disintermediation? In addition, if credit risk is now to migrate to other buyers such as hedge funds or insurance companies, which do not have a relationship with the borrower, what does this signify for those borrowers who had heretofore enjoyed the "patient money" stance of a bank lender rather than the more fickle moods of markets? While other practices like syndication and securitization have started the trend, CDSs could intensify it.

CDSs and other developments have lured nonbank players into the syndicated lending and credit intermediation arena. However, it is an open question whether that means that banks have transferred risks into other markets. The large syndicated corporate lending banks certainly went into this current cycle with very large single-name concentrations. Their "hold levels" were clearly stretched to the limits in a way that does not bespeak an ability to transfer risk to new sectors. Consolidation in the banking industries around the world has certainly shrunk the number of participants in the downstream distribution network of banks. It was perhaps inevitable and desirable that new players would enter the arena to replace the banks that disappeared. Had they not, one could argue that bank loan risks would perhaps have gone into the bond market or other markets because banks would simply not have been able to hold those risks. CDSs merely helped them to fulfill their client functions while maintaining what many would deem fairly liberal limits on risk exposures.

Implications for Bank Analysis

The advent of new, off-balance-sheet ways of buying and selling credit risk poses challenges for analysts of financial institutions. Credit derivatives promise at some point to transform the risk profiles of bank credit exposures in a way that will be difficult to depict with the standard disclosures of loans and commitments. Standard & Poor's has formulated some initial thoughts about how to view credit risk transfer activities and will evolve them as the markets develop and reporting and accounting issues change.

The issue is not simply one of removing risks off balance sheet if they are deemed to be hedged; risks will not be entirely removed. Nor in Standard & Poor's view is it a matter of granting capital credit for hedges in any neat and mathematically measurable way. Well-developed hedging activities will, however, alter the risk profiles of bank portfolios. That in turn will influence the allocations of capital appropriate for the portfolios in question.

CDSs can be effective tools with which to manage risk. However, they will probably not be perfect hedges in that basis risk, as defined below, will continue to exist. For one thing, CDSs are generally five-year contracts. At inception they might cover more than the life of the loan commitment, but when that commitment matures and is replaced by another, the mismatch may turn into a shortfall. With the constant turnover in the portfolios, CDSs will have a value, but that value will serve to mitigate the risks, not eliminate them. In that respect, they will be more like loan loss reserves or insurance policies than like a replacement for capital needs. If they alter the risk profile of the corporate lending activity, for example, Standard & Poor's would alter the general capital level with which we would be comfortable for the new risk profile of the portfolio. We consider this a more practical or pragmatic way of assessing credit exposures than on a hedge-by-hedge basis. In the absence of a very strict regulatory or accounting regime that could monitor the degree of matching in the contracts, surveillance of the thousands of contracts

certainly would become an impossible task for us. Unfortunately, although regulators currently have fairly stringent criteria for granting capital credit for credit default swaps in the banking books in many of the countries in which the derivatives are more widely used, Basel II will alter the situation. It will essentially grant partial capital credit for partial coverage of the term of the loan, and total credit (apart from counterparty risk) for total coverage of exposures by CDSs. This will, in Standard & Poor's view, render the risk-weighted asset calculation for the loan book less meaningful for our purposes than it might be otherwise.

Searching for Effective Hedges

The starting point for evaluating any institution's credit derivatives is an assessment of the general policy of using these instruments to manage risk. Standard & Poor's is more likely to acknowledge real risk reduction if there is a consistent, coherent strategy in place for employing credit derivatives, so that we can be confident that a certain amount of risk will be laid off at all times.

Even in a consistent program of hedging, Standard & Poor's looks for the policies that would limit the amount of a single-name exposure that could be transferred by means of a single credit derivative transaction with a single counterparty. Because of legal risk and the empirically observed issue that counterparties providing credit protection may balk when their obligation reaches large numbers (for example, \$500 million or more), prudent risk management should limit the amount of single-name concentration of exposure to individual counterparties. This is a particular challenge in the dealing book of any bank because almost by definition, half of all credit derivatives written will be hedging a client transaction and will likely be with another one of the 15 dealing banks that dominate the market.

Beyond these overarching policy issues, Standard & Poor's deems effective hedges to be those that do not evidence significant basis risk. To avoid basis risk, the contracts must have the following characteristics:

- Have the same or longer maturity date.
- Have the same reference entity as the hedged obligation. If the reference entity is a different legal entity belonging to the same corporate group, it should be explicitly guaranteed by the entity that is the obligor of the hedged obligation.
- Have the same reference obligation as the hedged obligation, or one that ranks *pari passu* with the reference obligation and has cross-default provisions with it.
- Be denominated in the same currency as the hedged obligation, or be coupled with a currency hedge.
- If the contract is to be settled with the delivery of a specific obligation, and the bank does not already own the obligation, that obligation should be sufficiently liquid so that the bank would have the ability to purchase it for delivery in accordance with the contract. If the bank owns the obligation in question, it must have the legal right to transfer that obligation.
- If the contract is to be settled with cash, the price discovery method should be clear.
- The credit event should be one that is relevant for offsetting losses that could be suffered on the hedged instrument. If the bank is hedging an instrument in its trading or AFS book, interim mark-to-market risk is a relevant risk that default-oriented instruments would not necessarily offset. In an accrual book, the credit event should include not only bankruptcy or default but also a restructuring, which could also lead to losses or reserve building even if no default occurs.

There are some additional considerations for basket transactions. "First-to-default" baskets feature coverage of the loss associated with the first

reference entity to default among a whole basket. Which specific name will default is not known, so it is not possible to cancel a balance sheet exposure to any specific name. However, the feature represents a form of insurance or ability to absorb losses—something like a loan loss reserve. "Second-to-default" or "nth-to-default" baskets provide some level of loss coverage as well, but that coverage is for a less probable potential loss event and is nice to have but not worthy of explicit risk-mitigation credit.

Even when there is no basis risk, many credit derivatives involve counterparty risk—the risk that the protection seller will not be able or willing to make contractual payments. This is especially true when the counterparty's creditworthiness is highly correlated with that of the reference entity. Thus an effective hedging strategy would not permit protection to be purchased from correlated parties. For other counterparties, unless the risk is collateralized (as it may be in the case of credit-linked notes or swaps written by special-purpose entities (SPEs) that hold collateral, the credit risk of the reference assets is mitigated, but not by 100%. The risk essentially becomes like other "two-name paper": it takes the default of two entities to result in a loss. Using the math of joint probabilities, this transforms the risk into something better than that of either the reference entity or the counterparty.

Legal risk is also a significant consideration in credit derivative strategies. Legal disputes can arise over the definition of a credit event or the validity of price discovery mechanisms. There have also been claims of misrepresentations or unfair sales practices. Although the industry association, the International Swaps and Derivatives Association Inc. (ISDA), has produced standardized documentation aimed at preventing such disputes, nonpayment occasionally occurs. This is especially true when the amounts due become large, as they have been in the cases of some credit-linked note structures.

Another consideration is the accounting asymmetry between loans and CDSs in many countries, especially if they follow FAS 133 or IAS 39. Most CDSs do not receive hedge treatment and must be marked to market in the trading portfolio. This can create considerable volatility in earnings, especially since loan exposures are accounted for on an accrual basis. In fact, since very few CDSs actually experience a credit event, their market value is sometimes just a function of expansions and contractions in credit spreads that were systemic rather than specific to the reference entity.

The story is somewhat different for credit derivatives that are in the form of securitizations. These are large transactions that Standard & Poor's analyzes individually. If risk transfer is partial or temporary, the derivative is seen to function more like a specific reserve than like an alternative to an outright sale of the loan. In still other cases, there is simply no material transfer of the credit risk inherent in the asset pool, so the assets must be added back to risk-weighted or book assets even if regulators might have accepted the hedge effectiveness.

The following paragraphs describe our approach to specific types of portfolio transactions regardless of whether they are funded, partially funded, or synthetic.

To receive credit from Standard & Poor's for removing risk entirely and thus no longer requiring any capital support, tranching securitizations must ensure that a substantial amount of the potential credit risk inherent in a pool of assets, as modeled by Standard & Poor's, is to be borne by the investors in subordinated tranches. For this to occur, the following conditions must be met:

- The same criteria for basis risk that is presented above must be met. Either the term of the transaction must be the same as the term of the assets in the pool or, in the case of a synthetic transaction, the term of coverage for the reference assets must match that of the hedged

obligations.

- For both funded and synthetic transactions, all unrated tranches and all rated tranches with ratings below those of the issuing institution must be sold, and no cash reserves or other "first-loss" absorption features should be required by the structure.
- There must be no early amortization feature. Early amortization features protect investors when asset performance deteriorates by requiring the buildup of cash reserves by trapping servicing spread income that would otherwise be remitted to the sponsor; in addition, the early windup of the structure limits the time frame over which investors would absorb loss and requires newly generated receivables of the borrower to be funded on the balance sheet of the sponsor.
- "Cleanup calls" must be purely a matter of administrative expediency to liquidate a structure that has too few assets left to be efficient to service. If the call comes at a time when only the worst assets can be assumed to be left outstanding or before the worst assets have had a chance to default, the structure will not be seen to transfer risk.
- The sponsor cannot be required or permitted to replace deteriorating assets in the pool with better ones.
- The sponsor cannot be required to increase cash reserves if assets deteriorate.

As a practical matter, the above conditions are rarely met other than in arbitrage CDOs or in the case of government-insured mortgage securities.

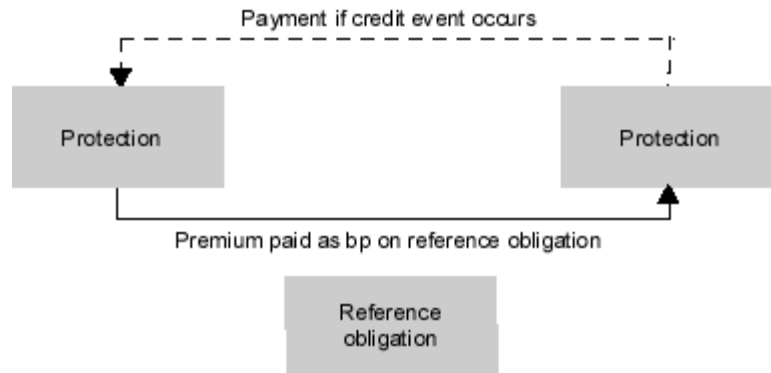
Frequently, however, some portion of the credit risk, usually that which is less likely to occur or catastrophic levels of potential losses inherent in the pool, are sold to investors. Standard & Poor's grants capital credit for the portion of the potential credit risk, as modeled by ourselves, that is sold to investors in the form of subordinated tranches.

Credit Derivative Products

Single-name default swaps.

These contracts transfer the credit risk of a single-reference entity's obligations from the protection buyer to the protection seller. The protection purchaser pays the protection provider a spread over LIBOR representing the risk premium appropriate for the reference entity, multiplied by the notional amount of the contract. If the agreed-upon credit event occurs (such as the bankruptcy of the reference entity, acceleration of its debt, or restructuring), the protection seller must either accept delivery and pay par for the now-depreciated referenced obligations or compensate the buyer in cash. If in cash, the price discovery method would have been stipulated in the original contract document, which would usually be a standard ISDA contract. The contracts generally are written for a five-year term in amounts of \$20 million-\$50 million in notional amount (see chart 2).

Chart 2
Single-Name Default Swaps



Risks and benefits.

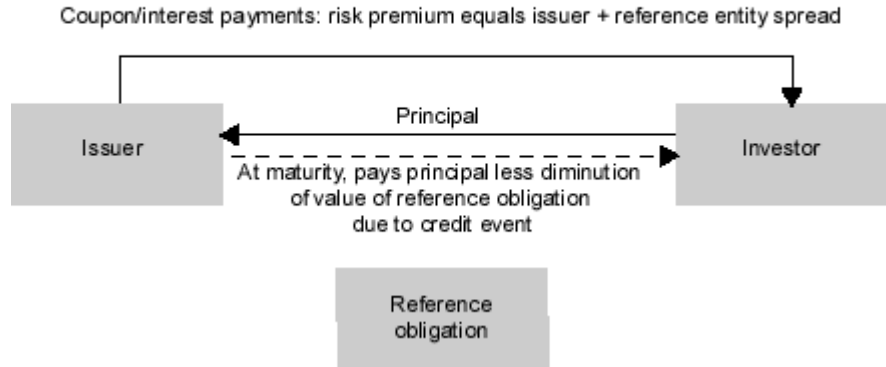
Neither the buyer nor the seller needs to own obligations of the reference entity, although if the contract is to be settled in the form of securities or loans, the protection buyer should be sure of his ability to obtain them and his legal right to transfer them. The protection buyer sheds the risk of the reference entity but bears the risk that his counterparty, the protection seller, will not perform either because of his own insolvency or because of legal disputes regarding some of the terms of the contract. The protection seller acquires the risk of the reference entity with the associated earnings, without having to service the client relationship; conversely, the protection buyer can retain a client relationship without retaining the credit risk. It should be noted that these instruments hedge the risk of the ultimate loss on an obligation if a credit event occurs, but do not contractually provide protection against interim market volatility.

Variations on the single-name swap are credit-linked notes and total return swaps.

Credit-linked notes.

A credit-linked note embeds a default swap in a security such as an MTN. The issuer of a credit-linked note receives cash up front in the amount of the par value from the protection seller. At maturity, the principal is only returned in full to the protection seller if no credit event occurs in regard to the reference entity or obligation. The protection buyer pays the seller interest payments representing the risk premium appropriate to his own obligations plus the risk premium appropriate for the reference obligations. The benefit of this type of transaction to the protection buyer is that he holds cash effectively as collateral that eliminates the counterparty risk of the protection seller. The cash also represents funding for the buyer. Credit-linked notes on a given reference entity may also be issued by an SPE. The SPE uses the proceeds either to purchase a note from the sponsoring bank or to purchase high-grade securities that it places as collateral with the bank; it also writes a default swap to sell protection on the same reference entity to the sponsoring bank or, more rarely, another entity. The purpose of this structure is to reduce the counterparty risk of the sponsoring bank borne by the investor, as the SPE is bankruptcy remote. It may also at times retain enough assets to qualify for a higher rating than the sponsoring bank (see chart 3).

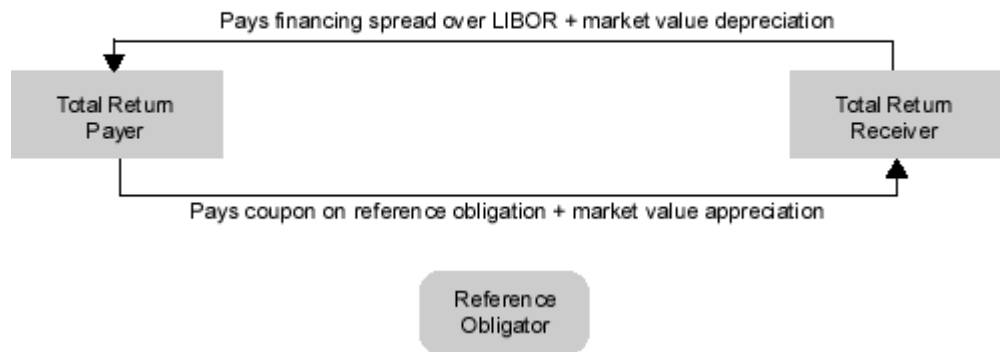
Chart 3
Credit-Linked Notes



Total return swaps.

Total return swaps pass on the entire interim market risk, in addition to simply the default risk, of owning a reference obligation to the protection seller. Each period, the protection buyer pays the protection seller the coupon on the reference obligation and any price appreciation. The protection seller pays the buyer any price depreciation on the security during the period. Thus total return swaps represent the economic equivalent of buying or selling the obligation. The protection seller may prefer this instrument to an outright purchase of the obligation if there are significant settlement issues surrounding securities trading or if other administrative issues such as loan monitoring exist (see chart 4).

Chart 4
Total Return Swaps



Portfolio transactions.

The most simple transactions are so-called basket trades, where protection is bought or sold through a swap covering a basket of reference entities or obligations. In some cases, i.e. "nth-to-default" trades, payment is limited to the "first-to-default" or "second-to-default" as the trigger credit event. Other types of contracts may pay up to a specified amount of loss. Such contracts can be more economical to purchase than single-name swaps because of the benefit of diversification and limited payout. On the other hand, direct hedge of any specific exposure is harder to prove.

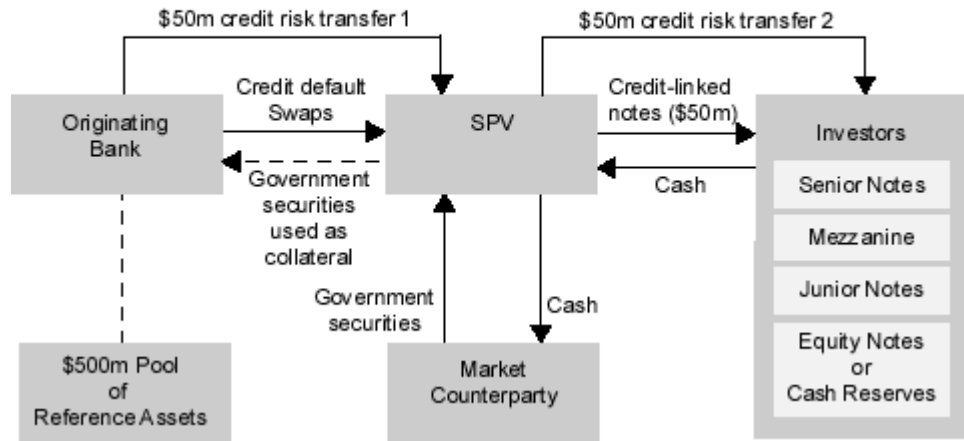
More complex structured portfolio deals are any securitizations that transfer significant risk from the issuer to investors. In particular, CBOs, balance-sheet and arbitrage CLOs, and synthetic CLOs are frequently referred to as credit derivatives. CDOs and both balance-sheet and arbitrage CLOs pool bonds or loans into an SPE; the estimated risk of credit losses is apportioned into tranches (reserve accounts, equity or unrated tranches, subordinated tranches, and senior tranches) representing gradations of risk of loss in decreasing levels of probability. These tranches provide funding for the assets and absorb credit risk in ascending order, with the most likely level of loss, or "first loss," meant to be borne entirely by the most subordinated tranche,

which is completely depleted before the next tranche is tapped to cover losses that exceed the amount of the first tranche. The protection buyer may have sold its own balance-sheet assets into the structure, as is the case in balance-sheet CLOs, or it may have purchased them in the marketplace expressly for the purpose of creating the structures.

Synthetic CLOs do not involve the transfer of assets into a pool. Instead, the credit risk of a pool of reference assets is usually transferred to an SPE or to both an SPE and a counterparty. The SPE writes a credit default swap that compensates the protection buyer for all or part of the credit risk inherent in a pool of reference obligations. The SPE sells to investors a series of certificates in tranches representing increasing gradations of risk. The proceeds of these certificates sum to the maximum level of loss potential on the credit default swap and are invested in high-grade securities, which serve as collateral that eliminates the counterparty risk of the SPE for the protection buyer. The risk premium paid by the protection buyer plus the interest earned by the investment securities are calibrated to cover the interest payments due on the securities sold by the SPE. To lower the cost of the credit protection, the protection buyer may offer to cover a "first loss" amount or may buy one of the lower tranches of certificates sold by the SPE.

Synthetic CLOs can be, and frequently are, structured using both an SPE and a counterparty. Here, a counterparty (usually 'AAA' rated) writes a senior credit default swap that compensates the protection buyer for the most senior or super-senior portion of the credit risk of a pool of reference entities. While the transfer of credit risk using the SPE works in exactly the same way as before, in these structures it relates only to the mezzanine portion of the credit risk in the pool of reference entities as the most senior piece is covered by the counterparty. However, the super-senior portion of the structure is usually unfunded (see chart 5).

**Chart 5
Synthetic CLOs**



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