

*Journal of***APPLIED CORPORATE FINANCE**

A MORGAN STANLEY PUBLICATION

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The Promise of Credit Derivatives in Nonfinancial Corporations (and Why It's Failed to Materialize)

by Charles Smithson, Rutter Associates, and David Mengle,
International Swaps and Derivatives Association

Since the introduction of the first credit derivatives in the early 1990s, both the size of the market and the variety of instruments that can be used to transfer credit risk have grown dramatically. In that sense, the development of credit derivatives resembles the evolution of other derivatives markets, such as those tied to foreign exchange, interest rates, and commodity prices. But unlike these other markets, the use of credit derivatives by industrial (that is, non-financial) corporations has remained fairly limited.

In this article, we begin by providing a brief overview of the rise of the credit derivatives markets and their uses by financial firms and investors. In the second part, we discuss potential applications by non-financial companies and close by speculating on why such applications have failed (at least for the time being) to take hold.

A Short History of Credit Derivatives

The timeline in Exhibit 1 traces both the appearance of the various credit derivative products¹ and the market participants that were driving the market.

Credit derivatives first appeared to provide commercial banks with a means of laying off excess credit risks—that is, to take short positions in credit. (Initially, the credit risk that the banks needed to lay off was the counterparty credit risk associated with interest rate and foreign exchange rate derivatives.) So, in the first phase of its evolution, the “demand side” of the credit derivatives market consisted primarily of commercial banks trying to lay off credit risk to insurance companies. Although hedge funds were active users of total return swaps, their main use of such swaps was as a means of funding arbitrage.

To accomplish this objective, two instruments—the Total Return Swap (TRS) linked to a credit asset and the Credit Default Swap (CDS)—were introduced in 1991. As illustrated in Exhibit 2, the TRS synthetically transfers the underlying credit asset from the total return payer to the total return receiver. In contrast to this synthetic transfer of the underlying credit asset, the CDS permits a market

participant to purchase credit protection on individual companies. In Exhibit 3, Acme Inc. has purchased protection on Giant Corporation. Here again, the primary sellers of such credit protection were insurance companies.

In the latter half of the 1990s, banks became interested in hedging portfolios of credit assets rather than single credits, in part because of their increased focus on reducing regulatory capital. The introduction of “First to Default Swaps” and CDS on baskets of corporate names appeared to satisfy this demand. However, the introduction of these products meant that the dealers and users of the products now had to consider the correlation of defaults, as well as the probability of default and the expected recovery in the event of default. During this period, the insurance companies were joined by some banks (in particular, “Yankee banks”) and money managers as the primary investors in the credit (i.e., protection sellers). Hedge funds, which had entered the market primarily as users of synthetic funding via total return swaps, retreated from the market following the 1998 LTCM crisis.

The third phase of the evolution of credit derivatives (approximately 2000-2002) was characterized by a change in the nature of the market rather than by the introduction of new products. From 1991, when the credit derivatives first appeared, banks had been the dominant player in the market, but this dominance was giving way as the '90s ended. Deals were now being structured to meet the wishes of the investors rather than those of the banks. Reinsurers and monoline insurance companies joined the multiline insurance companies, banks and money managers as investors—and the growth in participation of money managers was especially notable. At the same time, the hedge funds reappeared and quickly became big players. On the other side, the banks continued their efforts to reduce credit risk; but by this time, their focus had shifted from regulatory capital to *economic* capital.

Since 2002, the credit risk transfer market has been dominated by investors. And the behavior of the banks has changed to include not only buying credit protection

1. Since this exhibit focuses on the credit derivatives themselves, it does not illustrate the evolution of the securitized methods of transferring risk, including Credit-Linked Notes (CLN) and Collateralized Debt Obligations (CDO).

Exhibit 1

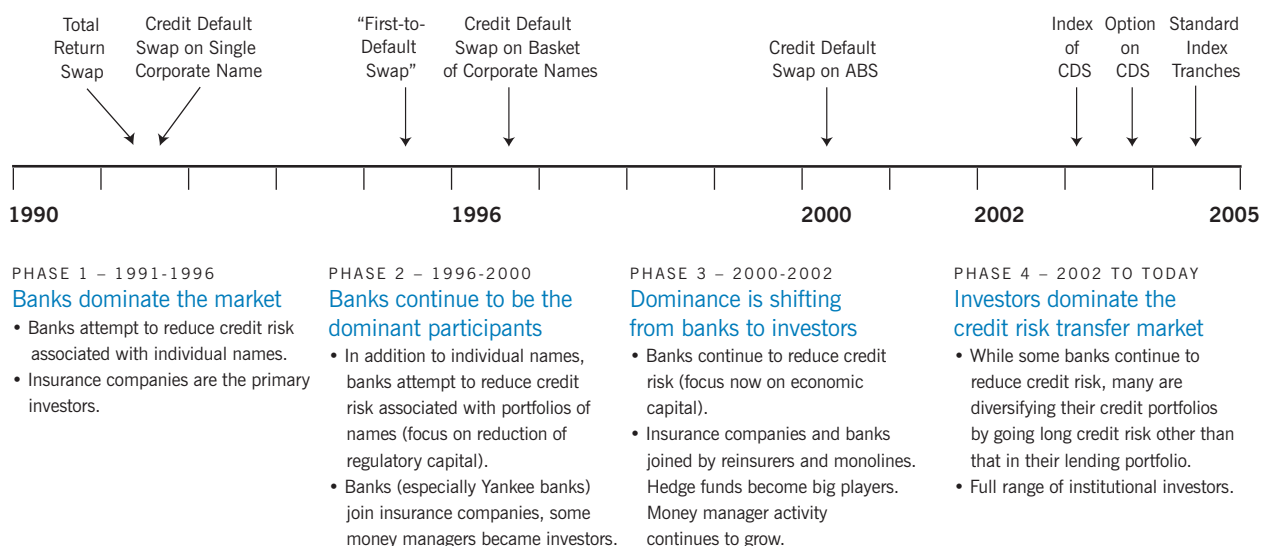
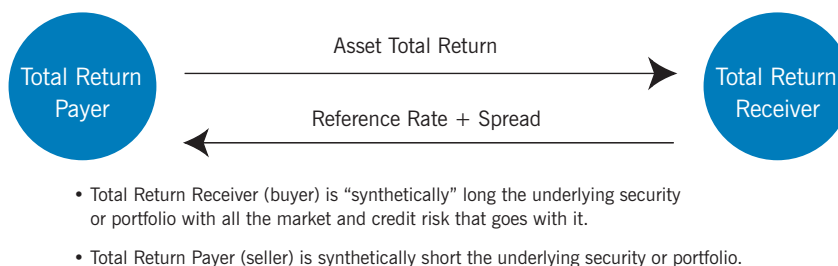


Exhibit 2 Total Return Swap



to reduce the credit risk from their own lending activities but also selling protection on credits not currently in their portfolio to increase the diversification of their portfolios. Accommodating this new source of demand from the banks, the new products that appeared were those that provided liquidity, notably the CDS indices. (See Exhibit 4.)

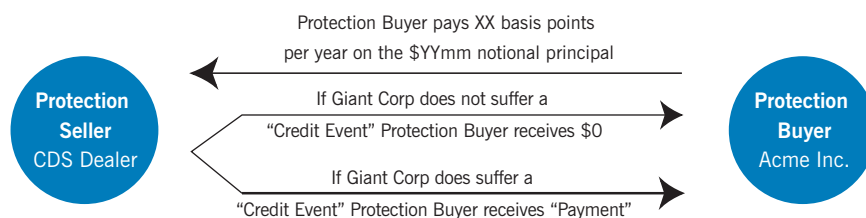
During this roughly 15-year period of development, the total volume of credit derivatives transactions has increased dramatically. In 2005, as shown in Exhibit 5, the volume of credit derivatives transactions first exceeded the volume in the "cash market"—in this case, outstanding corporate bonds and loans—following an extraordinary growth spurt that started around 2002.

As we described above, in a credit derivatives transac-

tion, one party is effectively "buying" credit protection from another party that is "selling" the protection. The most recent data available from the British Bankers Association (BBA) indicate that the largest purchasers of credit protection continue to be commercial and investment banks, which (as can be seen in Exhibit 6) accounted for 59% of all "short" positions. The other active purchasers of credit protection are hedge funds (28%). On the other hand, industrial (i.e., non-financial) corporations make up the smallest slice by far (2%), which suggests that corporates are not using credit derivatives to hedge their credit risk exposures. Banks, besides being the largest purchasers of credit protection, are also the largest sellers of such protection (44%),² followed by hedge funds (32%) and insurers

2. Remember that a bank can diversify its portfolio by going long credits not currently in the portfolio—that is, by selling protection on names that have low default correlations with the existing names.

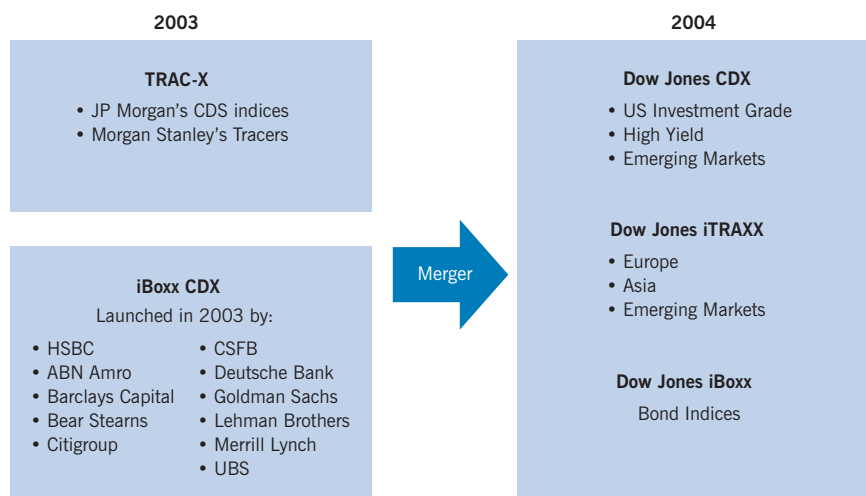
Exhibit 3 Credit Default Swap on a Single Corporate Name



Credit Event: Default on a specific "reference" obligation, or an enumerated group of obligations, or all obligations in a specified class (e.g. "foreign currency bonds"). Can also be bankruptcy, failure to pay, repudiation or moratorium, acceleration, or restructuring, (materiality conditions may be specified). Specific obligations may be excluded from the list of obligations that would trigger a credit event.

Payment: Cash settlement—Payment of the post-default market value of the asset against receipt of the strike price (usually par). Post default value determined per choices in the confirm. Physical delivery—delivery of the reference bond or loan—or other acceptable instrument as agreed in the confirm—against receipt of the strike price (usually par).

Exhibit 4 CDS Indices



(17%). Corporates account for an even smaller slice of protection sold than purchased.

The Case for Credit Derivatives Use by Industrial Corporates

Are corporates as absent from the credit derivatives market as the BBA survey suggests? (After all, corporates represent an important part of the interest rate, foreign exchange rate and commodity derivatives markets.) To answer this question, we interviewed five of the largest dealers of credit derivatives, all housed within large commercial or investment banks. What we were told is largely consistent with the findings of the BBA survey results—namely, that industrial

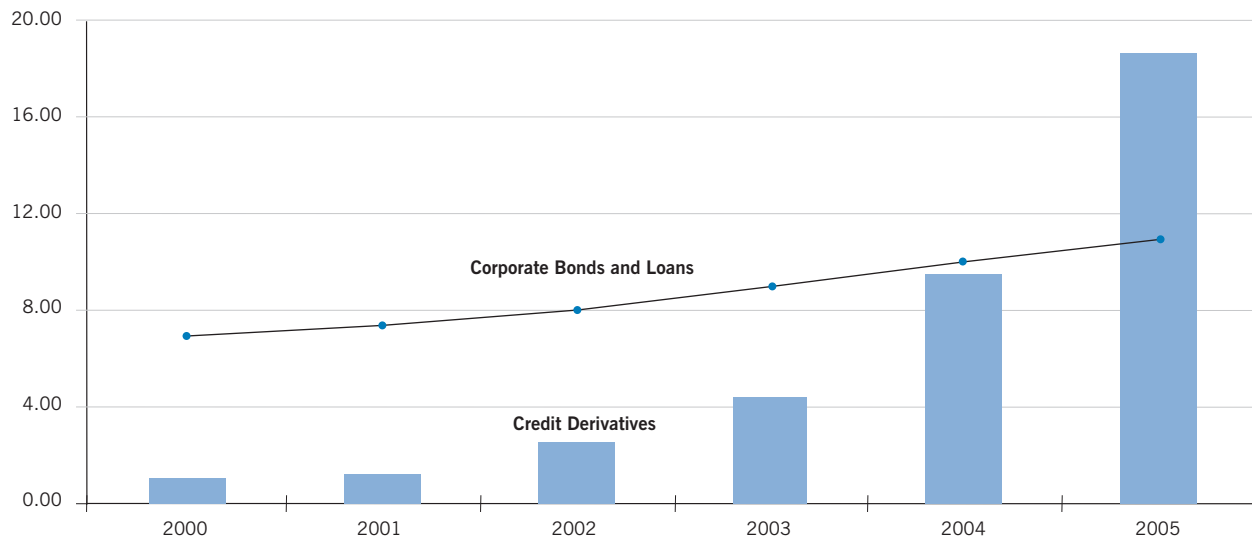
companies have played a negligible role in the development of the credit derivatives market.

Nevertheless, from the days of the first credit default swaps, the marketers of the instruments have envisioned the use of such instruments by industrial firms to reduce the probability or size of a loss resulting from default by a customer, supplier, or counterparty of any kind. Is it just the eternal optimism of marketers, or is there something about corporates that would lead one to expect them to make extensive use of credit derivatives?

Corporates face a number of kinds of credit risk exposure that could be managed with credit derivatives:

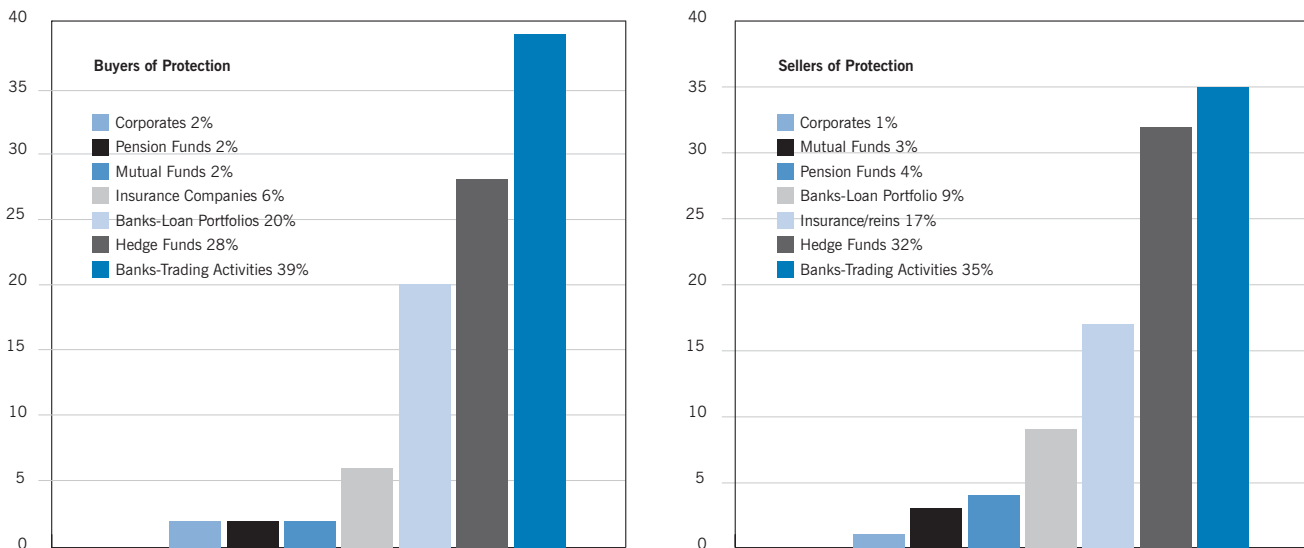
- The most obvious source of credit exposures are

Exhibit 5



Source: IMF, ISDA, Celent

Exhibit 6



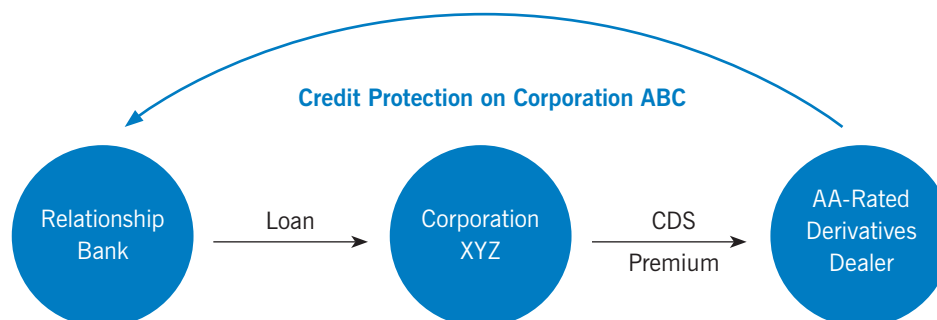
Source: BBA Credit Derivatives Report 2006

accounts receivable from customers. Note that while such exposures are potentially large, they tend to be short-lived.

- For some companies, a larger, or at least more strategic, exposure to their customers comes in the form of longer-term supply contracts. Consider, for example, the risk incurred in manufacturing custom products for one or a

handful of very large “assemblers and distributors” or retailers. Think about the auto-parts makers that supply Ford and GM, and the potential effects of a credit downgrade of such large “customers” on their suppliers.

- Some large industrial companies may find themselves providing funding to a large group of smaller, financially



limited customers, thus creating a different kind of credit exposure. Such companies might also find themselves making loans to smaller vendors—say, a software firm hired to help the company expand its IT capabilities.

- Yet another form of credit risk comes from counterparties in other derivatives transactions designed to hedge, say, FX, interest rate, or commodity price risk.

Each of these represents a situation where the prospects and value of a company can be undermined by a sudden, unexpected deterioration in another company's fortunes and, more pointedly, its credit standing.³

Other than credit derivatives, there are a number of tools corporates could use to manage these exposures, but each of them has drawbacks:

- *Credit Insurance*: The corporate could purchase a contract from a multiline insurance company that provides for reimbursement of losses if the firm's customer (or supplier) proves unable to meet its payables. However, to be paid under an insurance contract, the corporate must provide evidence of loss, a process that can involve costly delays and even litigation. Moreover, most credit insurance contracts require the insured to retain some of the credit risk (first loss position) to guard against moral hazard. Insurers also typically reserve the right to revoke coverage if a rating agency downgrades the insured company. Finally, credit insurance coverage is generally available for no longer than one year at a time (which means, among other things, that a sudden, unexpected downgrade could create problems when the contract comes due for renewal).

- *Factoring*: A factoring company (or some other discount programs) might be willing to accept the credit risk associated with receivables by purchasing the receivables outright. However, the price the factoring company will pay represents a significant discount from their present value.

- *Surety Bonds and Securitization*: These effectively involve the sale of the firm's receivables (either alone or packaged with other companies') to a financial intermediary that in turn packages them into a security for other investors. But the discounts tend to be significant, and so are the costs associated with converting such assets into securities. And most of the longer-term credit exposures do not lend themselves to either of these two solutions.

In sum, there appears to be a reasonable basis for the marketers' optimism, at least insofar as credit derivatives would provide the credit risk protection the corporates want without the drawbacks noted above. There is no discounting of the corporate's receivables, whether for liquidity or adverse selection considerations, and no need to pay an underwriting fee to issue a new security (however, the user of a credit derivative is still subject to the bid-ask spread associated with any derivative contract). Since credit derivatives are a capital market product rather than an insurance industry product, there is no need to demonstrate a loss; all the protection purchaser needs to demonstrate is that the credit event occurred.⁴ And the maturities of the protection provided by credit derivatives can be extended well beyond the one-year term of most insurance contracts. What's more, because of the liquidity in the market, the credit derivative can be sold (unwound) if the protection is no longer needed.

Lots of Talk, but Little Action

The preceding section argued that corporates face credit exposures that could be managed effectively with credit derivatives. And the credit derivatives dealers we interviewed did relate instances in which corporates are using credit derivatives to manage credit risk directly:

- Siemens Financial Services (SFS), the unit of Siemens

3. Not included in this list is the credit risk arising from corporate bonds held in the nonfinancial firm's investment portfolio.

4. This statement may need some qualification. We are confident about everything we have said, provided the credit derivative is purchased from a capital markets firm. How-

ever, we have heard of instances where a credit derivative was purchased from an insurance company and, once the credit event occurred, the insurance company reverted to the conventions of the insurance market—i.e., insisted that the protection buyer demonstrate a loss—before the payment would be made.

that focuses on the sales financing of Siemens' equipment, has reported that it uses single-name CDS to hedge its 8.5 billion trade finance book (i.e., short-term trade receivables).⁵

- In the course of our interviews with the credit derivatives dealers, we were told that some suppliers to department stores are hedging the credit risk on their receivables by purchasing CDS protection on the stores they supply.

- Some in the industry also believe that bringing in more corporate users would have the benefit of broadening and deepening the market by providing more "natural hedges" of existing exposures. As one dealer put it, "we're full up on investors and looking for others wanting to hedge." This is similar to the desire, expressed in the early 1990s, to find more embedded optionality among corporate and other derivatives users to provide alternatives to delta hedging as a means of laying off risks.

But, as already noted, what is most remarkable about nonfinancial corporates' use of credit derivatives is how limited it has been.

Why don't corporates make more *direct* use of credit derivatives? Our recent conversations with the credit derivatives dealers revealed a number of reasons why companies may be reluctant to use such derivatives.

- **Organizational Structure.** Unlike the management of interest rate risk and foreign exchange rate risk, credit risk management is typically not "housed" in the Treasury. Decisions to extend credit are typically made by people within a business unit, with the responsibility for managing the resulting credit risk typically staying with the business unit. And since most corporate expertise in derivatives tends to reside in the treasury, unfamiliarity with the instruments could be a major obstacle to the use of credit derivatives.⁶

- **Basis Risk #1 – Hedge Efficiency.** The protection provided by a credit derivative like a CDS would not be likely to provide a perfect match for the loss suffered by the corporation in the event of a default. For example, consider the case of a corporation hedging the risk of a customer defaulting on a trade receivable with a credit derivative that pays out in the event of a default on a bond or loan, a restructuring, or a bankruptcy filing. Since default on trade receivables is likely to take place long before any of the triggering events on the credit derivative, the hedge could prove ineffective, particularly if it is expected to function as an immediate source of "loss financing."

- **Basis Risk #2 - Maturity.** For CDS, the most liquidity is found in five- and ten-year contracts; unfortunately, these maturities are much longer than those of the average trade debt (which could be as short as one month).

- **Basis Risk #3 - Recovery.** It is harder for a corporate to determine how much CDS protection to buy than for a financial. With a standard CDS, if the credit event occurs, the protection buyer receives the difference between the recovery value and par value of the reference asset. But, as we noted earlier in discussing basis risk, that difference may bear little relation to the firm's trade losses.⁷

- **Documentation.** Because the existing credit derivative documentation is based on "borrowed money" reference assets (i.e., loans or bonds), the documentation works well for banks and investors. However, the existing documentation is less satisfactory for the credit risk for receivables, which is based on "payment."

- **Accounting.** FAS 133 requires that credit derivatives be marked to market. And since it is very unlikely that the corporation will be able to mark the underlying exposure being hedged to market, any change in the value of the derivatives will flow through the income statement, leading to unwanted volatility of earnings. (It's worth noting, however, that even though IAS 39 has the same mark-to-market requirement, Siemens claims to be undeterred by the resulting volatility of accounting earnings.)⁸

Some readers might wonder why we did not include "cost" in our list of reasons why corporates are reluctant to use credit derivatives. The dealers did say that corporations regard credit derivatives as "expensive"; but the perception of corporations in this case may well have been distorted by the unusual "methods" of price discovery they have used in the recent past. As three of the five dealers we interviewed told us, corporates tend to call them only after adverse news "hits the wire"—at which point, of course, instruments that may once have been inexpensive will clearly have become much more expensive.

Much More Action and Almost No Talk

So far, our discussion has been limited to the *direct* use of credit derivatives by corporates, instances of which continue to be few and far between. However, one common way in which corporates now use credit derivatives does not show up as a "corporate use" in the statistics: To free up credit lines, so the corporate can borrow or enter into

5. Ralf Lierow, the Director of Portfolio Management at Siemens Financial Services, described the firm's activity in "Credit Derivatives in Risk Management: Chance for the Corporate World," in Pablo Triana, *Corporate Derivatives, Risk Books*, 2006. While Siemens is clearly an industrial corporation, one might quibble about whether or not SFS should be regarded as a "corporate," especially since it not only manages Siemens's own receivables, but also buys receivables from other firms.

6. On the other hand, commodity price risk is also not normally "housed" in the Treasury; but corporates are the dominant users of commodity derivatives.

7. This tends to move corporates toward "digital" (fixed-recovery) credit derivatives,

where the payoff is an agreed-upon amount, rather than being determined by the recovery on the underlying asset.

8. Ralf Lierow, Director of Credit Portfolio Management at SFS, noted that Siemens' decision to use CDS was made even though the receivables are generally very short-term and, with the introduction of IAS 39, the marking to market of the credit derivatives would increase SFS' earnings volatility. See Ralf Lierow, "Credit Derivatives in Risk Management: Chance for the Corporate World," in Pablo Triana, *Corporate Derivatives, Risk Books*, 2006.

derivative transactions, the corporation pays the cost of CDS protection.

Exhibit 7 illustrates how the simplest of this type of transaction works. Corporation XYZ, which is wholly owned by Corporation ABC, approached its relationship bank about an additional 10-year, \$10-million term loan (supported by a guarantee from their parent). While the relationship bank said they remained happy enough with the creditworthiness of Corporation XYZ and Corporation ABC, they said any more lending would violate the bank's concentration limits. To persuade its relationship bank to make the loan, Corporation XYZ purchased credit protection on its parent in the form of a 10-year CDS with a notional principal of \$10 million from an AA-rated credit derivatives dealer (who then passed the credit risk on to an investor). This had the effect of freeing up \$10 million of credit for the bank to make the \$10 million loan to Corporation XYZ.

Another application takes the idea a step further. Equipment producers and other industrial companies have set up bankruptcy-remote subsidiaries to issue debt (in the form of commercial paper) against the industrial company's own receivables. To issue the commercial paper, however, the subsidiary needs a bank to provide a standby liquidity facility. The terms of these standby liquidity facilities include limits on the concentrations that can exist in the receivables portfolio—that is, as the receivables portfolio becomes more concentrated by individual name or sector, the proportionate size of the standby facility declines. By purchasing credit protection on the names or sectors that violate the concentration limits, the corporation can increase the size of the standby liquidity facility and therefore the amount it can borrow through the its subsidiary.

Still another possibility involves the fastest-growing CDS product—namely, CDS on credit indexes. A corporate planning to issue debt could hedge its exposure to the general level of market spreads by buying protection in anticipation of spreads widening. When the company actually issues the debt, it closes out the CDS by selling it back. If spreads have indeed widened, the company closes out at a profit to offset costs of borrowing; if spreads have not widened, the company will still close out but will have locked in a higher cost of borrowing. The advantage of using a CDS on an index is that it avoids the incentive problems associated with hedging by means of self-referencing CDS;

the disadvantage is basis risk if the company's spreads do not move in tune with the market as a whole.

In Closing

In sum, there appear to be a number of promising uses of single-name CDS and other credit derivatives by industrial companies. But there are also some major obstacles that need to be dealt with before such uses move from promise to reality. Probably the most important are the considerable basis risk and the associated prospect of earnings volatility that come with the use of such derivatives to manage the firm's credit exposures.

On the other hand, those companies that rely heavily on other companies, whether as customers or suppliers, may well find greater reason to limit their exposure to the credit standing of such firms. And if the demand for such credit risk transfer becomes large and urgent enough, our prediction is that, at least for more forward-looking and innovative companies, these obstacles will turn out to be temporary roadblocks. As we point out in this article, for companies concerned about the staying power of the firms they transact with on a regular basis, whether major customers or suppliers, there are traditional credit insurance markets to help them manage such tasks. But, for those corporate treasuries and business units willing to make the investment in bringing themselves up to speed on credit derivatives, the derivatives markets are likely to prove a far more efficient and flexible means of transferring credit risk.

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Journal of Applied Corporate Finance (ISSN 1078-1196 [print], ISSN 1745-6622 [online]) is published quarterly, on behalf of Morgan Stanley by Blackwell Publishing, with offices at 350 Main Street, Malden, MA 02148, USA, and PO Box 1354, 9600 Garsington Road, Oxford OX4 2XG, UK. Call US: (800) 835-6770, UK: +44 1865 778315; fax US: (781) 388-8232, UK: +44 1865 471775.

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