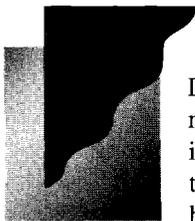


Reducing credit risk in over-the-counter derivatives

John P. Behof



During 1992, there has been much discussion of the staggering size and dramatic growth in the use of derivative and off balance sheet financial products and the potential risks these products present to the global financial system. A number of events in particular have led to greater concerns surrounding management of credit risk arising from derivative and off balance sheet products. While the term “derivatives” is used to describe a variety of nontraditional financial instruments such as interest rate swaps, financial futures, and options, most risk concerns are focused on the proliferation of over-the-counter (OTC) products which bear direct counterparty credit exposure. OTC derivatives include a myriad of swap and option products linked to interest rates, currencies, equities, and commodities. Unlike exchange traded futures and options contracts with margin requirements, OTC off balance sheet products incur credit risk due to the potential default of the counterparty prior to contract maturity.

The bankruptcy of Drexel Burnham Lambert and the subsequent failures of the Bank of New England, Development Corp. of New Zealand, and British & Commonwealth Merchant Bank caused many market participants, especially corporations, European users, and investment funds, to restrict their OTC derivatives credit exposure to only AAA and AA firms.¹ The more recent bankruptcies of Olympia & York and other corporate entities with fairly substantial derivative books further illustrated the dangers in conducting OTC derivatives business

with weak corporate counterparties outside of the interbank arena.

Besides the actual bankruptcies that have occurred, many other firms have been downgraded recently, causing credit sensitivity in OTC derivatives to increase substantially. Other factors contributing to the recent credit concerns include the increasing complexity and maturity of the deals, the increased participation of weaker corporations, uncertainty about legal remedies, and increased difficulty in judging the creditworthiness of derivatives users due to current accounting rules.²

These credit constraints have the potential to impact the number and nature of market participants as well as impede the dramatic growth of off balance sheet financial products. Major commercial and investment banks that have been downgraded have already lost market share and fee income from high margin corporate customers that are in some cases authorized to deal with only AAA or AA firms. The remaining AAA and AA market makers are also reducing their exposure to the downgraded firms, threatening the ability of lesser rated entities to participate in these markets safely and profitably. These pressures could trigger a migration to exchange traded markets, especially in light of the fact that recent regulatory changes will likely

John P. Behof is a Senior Examiner in the Department of Supervision & Regulation at the Federal Reserve Bank of Chicago. The author is especially grateful for assistance by Barbara Kavanagh, Financial Markets Officer. The author would also like to thank Herbert L. Baer, Garrett Glass, John Stocchetti, and Ken Wiersum for their insightful comments.

allow futures exchanges to list OTC products as well as the already listed contracts which can be used as substitutes.³

As a result, derivative market participants have devised new methods for dealing with increased credit risk as well as increased usage of more established methods. These may generally be divided into the following categories: (a) formation of a special purpose vehicle (SPV) or special operating subsidiary with a higher credit rating than the parent; (b) collateralization of credit risk; (c) cash settlements, assignments, and unwinds; (d) netting of obligations, both bilaterally and multilaterally; and (e) third party "portfolio" support, such as pool insurance, letters of credit, or guarantees. Some credit reducing techniques, such as bilateral netting and collateral agreements, have been used for years by a minority of counterparties to aid in their execution of trades with each other. Others, such as SPVs and multilateral netting are more recent innovations. The successful implementation of any of these credit reducing techniques will determine whether these markets experience continued growth or stagnate under the weight of credit constraints. This article will describe and analyze some of the more notable attempts at reducing credit exposure in derivatives.

Special purpose vehicles

The use of special purpose vehicles (SPVs) as a credit enhancement in derivatives is in some ways analogous to securitization. Over the past five years, several institutions of less than AAA rating have found securitization to fund certain assets to be cost effective. In a traditional securitization structure, a separate organization, usually a trust, is established to isolate the assets in question from the overall risk of the originator. Establishing corporate separateness is essential for three reasons: to allow the SPV to obtain a separate, higher rating; and to insure that, in the event of bankruptcy or insolvency of the parent, the SPV could avoid having its assets and/or cash flows made part of the bankrupt parent by "substantive consolidation;" and to assure the parent's creditors or regulators that there is no recourse to the parent.

A classic securitization is the conveyance of a pool of assets to the trust, with the credit risk of the pool partially insured by a mechanism such as a reserve for losses, letter of credit, etc. In the case of derivatives, SPVs have generally been established to isolate a product line *pro-*

spectively. A review of two SPVs established to date by major investment banking firms illustrates this.

Both Goldman Sachs Equity Markets L.P. and Merrill Lynch & Co. have established and capitalized SPVs to improve their trading products' capabilities. In each instance, the parent company has contributed significant capital to the newly formed entity. Both SPVs obtained AAA ratings whereas the parent firms had A+ senior unsecured debt ratings. The level of capitalization in each, together with certain other steps taken to effect corporate separateness and contain the level of credit and market risks indigenous to the portfolios, allowed the SPVs to attain separate, higher ratings.

In the case of Goldman Sachs, GS Financial Products International, L.P. (GSFPI) takes the legal form of a limited partnership. It was initially capitalized by a parental contribution of a portfolio of in-the-money yen denominated options and warrants on the Nikkei 225 stock index valued at approximately 9.3 billion Japanese yen. In the case of Merrill Lynch, Merrill Lynch Derivative Products, Inc. (MLDPI) is a legally independent subsidiary capitalized via \$300 million in common stock issued to Merrill Lynch and a \$50 million preferred stock issue placed with a third party. With each vehicle, additional elements are present to insure corporate separateness that include all or some of the following: some element of management and directorate independence, operating and accounting safeguards, and ongoing, independent audit or third party oversight.

Credit and market risk associated with the SPVs existing and/or prospective business is limited by setting certain preestablished parameters within which business will be conducted. Counterparties need to meet certain *de minimus* standards designed to insure diversification and to limit risk taking. These include the credit rating of counterparties, exposure to an individual counterparty, limits on aggregate exposure to a class of a given rating category, and limits on diversification of country risk by country of origin of counterparty. Credit quality can also be maintained through various capital targets which become increasingly restrictive as counterparty ratings decline and probability of default increases.

Equally important are the terms of such other factors as market, currency, and/or interest

rate risk exposures. MLDPI is chartered to enter into interest rate and currency swaps, caps and floors, and interest rate options. Each swap MLDPI enters into with a customer will be mirrored by a swap with the opposite payment characteristics from Merrill. MLDPI will therefore not be directly exposed to fluctuations in interest rates or exchange rates.⁴ Since Merrill's rating of A+ makes it the lowest rated counterparty conducting business with MLDPI, the latter is protected by a requirement that Merrill collateralize its *net* position with MLDPI. The ability to provide collateral on a net basis is one reason SPVs are more attractive than executing separate collateral agreements with each counterparty.

As of this writing, there are several commercial banks contemplating the establishment of SPVs in the form of operating subsidiaries to house at least a portion of their derivatives business. The creation of SPVs by banks raises several new regulatory issues.

(a) Bankruptcy remoteness: in the case of a commercial bank, the issue is whether, in the event of insolvency of the associated bank, the Federal Deposit Insurance Corporation (FDIC) would recognize the derivatives subsidiary as being a separate entity or instead consider it part of the institution in receivership. As of this writing, it is unclear whether the rating agencies will rate bank derivative product subsidiaries AAA without some form of assurance from the FDIC that they will in fact be treated as "bankruptcy remote."

(b) Capital adequacy: clearly the Merrill Lynch and Goldman SPVs were begun with substantial capital contributions from their parents. The ability of commercial banks to contribute such sums and remain adequately capitalized as independent entities will be subject to review. In addition, movement of collateral from the bank to the SPV will be required in the event the value of the bank's position deteriorates or if one of the SPV's counterparties is downgraded. In the proposals to date, the derivative subsidiaries are structured as operating subsidiaries of the commercial bank so that any equity contributed to the subsidiary could be "recaptured" in the accounting consolidation process. The question becomes one of whether consolidation of allocated capital should be permitted for risk capital adequacy purposes.

(c) Preemption of the FDIC and unsecured creditors: the question arises of whether unse-

cured creditors of the bank establishing the derivatives operating subsidiary are effectively disadvantaged by a portion of capital being allocated to the subsidiary. In the case of commercial banks, the ultimate unsecured lender could be the FDIC.

The proponents of bank SPVs recognize these issues as important, but believe they are not exclusive to derivative subsidiaries for the following reasons. First, the establishment of bankruptcy remote entities by banks is not a new concept and the legal precedent for corporate separateness is well established. Second, the consolidation of nonderivative operating subsidiaries for the "recapture" of risk based capital is a regularly accepted practice, except for bank holding company subsidiaries (Section 20 subsidiaries) that are involved in "bank ineligible" securities underwriting activities which have been allowed by the Federal Reserve Board on a limited basis since 1987.⁵ However, the combination of a bankruptcy remote entity which is also an operating subsidiary is a new concept. Finally, the preemption of the FDIC and other unsecured creditors can be accomplished effectively through a number of other collateralized activities already conducted by banks, including exchange trading, unilateral, bilateral, and multi-lateral collateral agreements, as well as repurchase agreements and membership in clearinghouses. For example, if a bank were taken over by a government agency, it is unlikely the agency could repudiate an obligation to a third party and expect that party to return the collateral it held as security for the obligation.

Although SPVs are in their infancy, market participants note that each of the vehicles established to date are reported to be successfully booking business with corporate users and OTC market participants. However, two negatives of SPVs have been noted. First, some corporations do not believe the AAA SPVs are truly AAA and will "look through" the vehicles to the parent's credit rating. Second, some corporations are not agreeing to have their trades reassigned out of the SPV in the case of their own downgrading.

Bilateral netting

Banks and other derivative market participants have been more aggressively pursuing netting agreements, both bilateral and multilateral, as a reaction to credit concerns. The ability to net obligations within product groups, such as

foreign exchange and interest rates commodities, has been the focus of the vast majority of these attempts, although cross product netting between derivative types is becoming more prevalent. For example, if Bank A was owed a net present value of \$50 million on interest rate swaps by Bank B, but owed \$25 million in currency options to Bank B, netting the two obligations would reduce credit risk by half. Some cross product netting agreements have gone so far as to include the netting of nonderivative obligations such as loans with net derivative balances, but these are very rare. Some large banks have indicated that having derivative bilateral netting agreements with approximately a dozen large counterparties could reduce credit risk by as much as 50 percent.

Bilateral netting agreements can generally be divided into four categories: netting by novation, close out netting, payment netting, and cross product netting.

Netting by novation

Netting by novation refers to a legally binding netting where matched pairs of trades between counterparties are superseded by subsequent trades—in effect, a running balance is operative.⁶ The Financial Institutions Reform, Recovery, and Enforcement Act of 1989 (FIRREA) specified several “qualified financial contracts” and how netting of these contracts would be treated in receivership or conservatorship for U.S. depository institutions. This allowed institutions to comfortably participate in written novation agreements for most derivative contracts with U.S. depository institutions without much worry of regulatory repudiation.

Netting by novation has been popular with foreign exchange contracts because large numbers of matched trades typically exist (same currency, same settlement date, same counterparty), although spot foreign exchange was not specifically mentioned in FIRREA. In interest rate products and other OTC derivatives, however, netting by novation is less common since trades with matching terms are more unusual. Since principal is not exchanged, it is the periodic payments that fall on the same settlement date within the same product line which are novated. It would appear, however, that the desire to utilize netting by novation in a credit sensitive environment may encourage more standardization in these products.

Regulators have expressed concern that the large growth in outstanding notional principal value in derivative markets has been accompanied by a commensurate amount of growth of the risk in these markets. The trend toward netting schemes, however, has the power to reduce real credit risk relative to the size of notional values. Using the outstanding notional principal as a proxy for risk will become even more tenuous as legally enforceable netting environments proliferate. In countries where it is known to be enforceable, netting must be viewed as a powerful credit enhancer and may become even more prevalent in the years ahead.

Close out netting

Close out netting is a netting procedure which becomes operative only in the event one or both of the counterparties defaults on its obligations or a triggering event takes place, such as a downgrade. Although close out netting agreements used to be mostly stand alone agreements, they are increasingly becoming part of master agreements. The current International Swap Dealers’ Association (ISDA) master agreement, a bilateral agreement typically used between interest rate derivative counterparties, defines the methodology by which all contracts between the party and the counterparty will be netted to a single number in the event of a default. In addition, the standard swap agreement has a provision which states that a default on any single swap or derivative obligation between the counterparties triggers termination of all derivative contracts between the counterparties, thus preventing “cherry picking” (that is, demanding payment for trades with positive mark to markets and renegeing on trades with negative mark to markets) by counterparties. Once termination is triggered, all positions are marked to market and any payments owed to the defaulting party are netted against payments owed by the defaulting party before settlement is made.

Changes in the bankruptcy laws in the United States in 1990 made close out netting in derivatives standard procedure for corporate entities, while the FDIC Improvement Act of 1991 (FDICIA) clarified the enforceability of close out netting and netting by novation in derivatives for depository institutions. By being even more specific about the protection from cherry picking by regulatory conservators and counterparties, FDICIA improved what FIRREA had begun. Since FIRREA states that close out

netting will be accomplished using net present values, it lessened significantly the credit risk associated with long term financial contracts. FDICIA does not limit the netting procedures to “qualified financial contracts” like FIRREA, thereby opening the door for cross product netting of financial contracts with other more traditional obligations. FDICIA does, however, contain stringent documentary requirements for counterparties, consistent with FIRREA and the Bankruptcy Code for corporations.

Payment netting

Payment netting or “position netting” is an unwritten arrangement between two counterparties to net the payments arising from two or more derivative transactions on which payments are due on the same day. A written agreement to net payments would be considered netting by novation. In either case, the underlying credit risk from mark to market values is unchanged, because they remain legally obligated for the gross transactions.⁷ The number of settlement messages are also reduced, as are the amount of funds needed for routine settlements. The value of informal payment netting is unclear, however, because whether it is legally binding remains untested.

Cross product netting

As previously mentioned, netting across derivative product categories has been experimented with for the last several years, while netting derivatives with nonderivatives is just beginning. For example, suppose XYZ Corporation has an exposure to Bank A. In order to ensure that Bank A could perform, it grants a loan or credit line to XYZ Corporation. The loan or credit line would be in the same amount as the exposure, with the credit line only being drawn upon by Corporation XYZ if Bank A appeared to be in trouble. With a cross product netting agreement, if Bank A is taken over by a federal agency, Corporation XYZ’s exposure on the derivative would be netted against the loan, and therefore the net exposure would be eliminated. Although potentially a powerful credit enhancer, this type of arrangement may face criticism as it could strain bank liquidity when it was needed most. Surely, as this type and other types of cross product netting schemes come to light in the next few years, there will be much debate as to whether their benefits are outweighed by other risks they may introduce.

The legal implications of bilateral netting

The legal enforceability of bilateral netting agreements is paramount in order to effect any risk reduction in the case of counterparty bankruptcy. It has been substantially enhanced in the U.S. by recent amendments to the United States Bankruptcy Codes (1990), FIRREA, and FDICIA for depository institutions. The ability of conservators to cherry pick has been severely restricted in the U.S. by these legislative changes, but only if written bilateral netting agreements exist. Section 212 of FIRREA states that no person will be prohibited from exercising his or her right to net obligations of any qualified financial contracts with depository institutions in conservatorship or receivership. FIRREA defined qualified financial contracts as any securities contract, commodity contract, forward contract, repurchase agreement, swap agreement, and any similar agreement.⁸

Despite the legal changes incorporated in FIRREA and the bankruptcy code, some uncertainty remained. For example, since the qualified categories were so broadly defined, it was never made clear whether spot foreign exchange contracts were included. In addition, it was also never made clear whether netting would be permitted across categories of individually qualified contracts. FDICIA’s approach, however, is to look at the type of contracting party, not the contract. Any kind of agreement between *financial institutions* in which parties agree to net positions subject to certain contingencies would be considered a qualified netting contract. Under FDICIA, the Federal Reserve Board may determine what is a financial institution and is currently determining whether insurance companies, swap affiliates of broker-dealers, nonbank subsidiaries of banks and bank holding companies, or other entities will be included in the definition.⁹

Outside of the U.S., the legal enforceability of netting is not as straightforward. The Lamfalussy Committee on Interbank Netting Schemes concluded in its 1990 report that bilateral master agreements and other bilateral netting by novation or current account agreements are likely to be enforceable in countries where the 1988 Basle Accord is in effect.¹⁰ The ISDA has obtained legal opinions from counsel in Belgium, Canada, France, Germany, Italy, Japan, the Netherlands, Sweden, and the United

Kingdom indicating that netting provisions contained in bilateral master agreements were likely to be upheld in each of those countries.¹¹ Unfortunately, constructing legally enforceable netting agreements, considering the sometimes conflicting legal structures of different countries, is often at odds with the attempts to standardize such agreements. Also, because so few derivative firms have gone bankrupt, different degrees of comfort are taken from reasoned legal opinions, especially when the more esoteric derivatives are involved and countries with less clear legal precedent are involved. In addition, regulatory authorities have expressed concern over the enforceability of netting agreements during an international financial crisis, which would have potentially widespread systemic implications.

Although they can be somewhat expensive and difficult to execute, bilateral netting agreements are gaining popularity as an immediate remedy to credit constraints, particularly since multilateral clearinghouses appear to be a year or two away from establishment. Until recent introduction of more standardized documents, standardized bilateral netting agreements were usually customized documents or somewhat customized versions of the ISDA master agreement which were negotiated by the attorneys from each counterparty. As bilateral netting agreements have gained popularity, more standardized agreements are appearing. ISDA has developed a standardized bilateral close out netting agreement which is part of the so called multiproduct master agreement which has recently been completed. Other agreements used in the market which have provisions for bilateral netting include the International Currency Options Market Master Agreement and Guide (ICOM), the New York bank foreign exchange master, the PSA agreement for bond options and repurchase agreements, the cross border Canadian foreign exchange agreement, and FXNET. In addition, the ICOM group is preparing an agreement for foreign exchange spot and forward transactions which will include netting provisions. None of these netting documents has yet emerged as a clearly preferred document within the financial industry.

Collateral pledging for OTC derivatives

Recently, many interbank derivatives market participants have established unilateral and bilateral collateral agreements or margining agreements among themselves and with corporate counterparties. In short, bilateral collateral agree-

ments require two way movement of assets, that is, the positions are marked to market and the debtor counterparty pledges cash or securities to the contra counterparty. Unilateral agreements require one counterparty to deliver collateral on trades with negative mark to markets but not the other, presumably because one counterparty is less creditworthy. Theoretically, if the debtor counterparty that pledged collateral was to default, the contra counterparty would take possession of the collateral. This system is analogous to the futures exchanges' mark to market system. In a futures system, participants with positive mark to market positions receive cash. Under a collateral agreement they are pledged assets.

Bilateral collateral agreements have become popular with downgraded interbank participants because they allow them to continue to trade among themselves, while capping, or limiting, attendant credit exposure; unilateral agreements have allowed weaker corporations and thrifts to participate in OTC derivatives. In general, the highest rated interbank players (AAA, AA) have preferred to trade among themselves and with highly rated corporations and have not to date been active in establishing interbank collateral agreements. Recently, however, more highly rated participants have been attracted to the concept in order to facilitate trades with lower rated counterparties and increase volume with higher rated counterparties.

One question is whether the cost of collateralizing losing trades would prohibit widespread acceptance of the concept. Investigation shows, however, that the cost can be made manageable. Several cost cutting methods are in use.

- (a) High thresholds for movement of collateral (usually several million dollars) eliminate the need to move collateral in the case of small losses. High thresholds decrease the probability that collateral will move, but allow for protection against large credit losses and reduce costs significantly. In many cases, the counterparty with the higher credit rating may have a higher threshold or point at which collateral need be pledged than the lower rated counterparty. This system of uneven thresholds allows lower rated interbank participants to avoid unilateral collateral agreements. Uneven thresholds also allow for the possibility that the lower rated bank may receive collateral. In cases where creditworthiness is of great concern, a negative thresh-

old is established. Collateral is pledged on an existing deal in which the debtor's mark to market value approaches zero but is not yet negative. When a negative threshold is in effect, some initial collateral may be required on day 1 because the mark to market value would already be near zero for the weaker counterparty on the day the contract is executed.

- (b) Triggering events such as rating agency downgrades or lower capital ratios can be used to initiate collateral movements. This type of advance agreement can reduce substantially the operational costs of moving collateral regularly while maintaining significant protection from losses.
- (c) Commingling of funds allows the collateral recipient to earn some interest on the collateral to defray the cost of its collateral outlays. In this respect, cash collateral is treated like a pledged bank deposit and security collateral would be available for repledging by the holder. However, some collateral agreements prohibit repledging of securities or commingling of funds.
- (d) Security substitution or rehypothecation provides even greater flexibility and less cost. For example, debtor counterparties may use term repurchase agreements (repos) to obtain collateral, that is they would make a short term loan to a third party and receive securities as collateral for the loan. These securities would then be pledged to the derivative contra counterparty as collateral on the derivative position, which could be long term. With rehypothecation, the debtor may substitute alternate securities or cash with the derivative contra counterparty when the repo term is up or at any time, thus allowing the most cost effective use of collateral. The following example illustrates these transactions.

Suppose Bank A is the debtor counterparty and must pledge collateral to the contra counterparty (Bank B). After comparing all the interest rate swap contracts between Bank A and Bank B, Bank A has a negative mark to market of \$12 million with Bank B. (In other words, interest rate movements since the time of initially entering into these contracts have been in favor of B, thereby leaving it with credit risk exposure to Bank A.) The collateral threshold, however, is \$10 million. Bank A is therefore required to

pledge \$2 million collateral to Bank B. Bank A could deposit \$2 million cash in a bank account at Bank B and earn the interest. Bank A could also send securities that it already owns.

Those already collateralizing transactions believe that the collateral agreements described above would be enforceable in a bankruptcy proceeding, especially in the case where securities are used. In fact, banks sometimes avoid using cash as collateral even when it is more economical because of the greater uncertainty of retrieving the cash in the event of a default. The greatest uncertainty lies in the case when excess collateral has been delivered to a counterparty with a positive mark to market that subsequently defaults. If cash collateral is used to fulfill the debtor counterparty's obligations, any claims for any "excess" cash resulting from revaluing the contracts could be viewed as an unsecured claim by a bankruptcy court. When securities have been used as collateral, the excess amount seems less likely to become an unsecured claim because securities are easier to trace and to identify than cash. Therefore, it is presumed that excess collateral in the form of securities would be easier to retrieve in the case of bankruptcy.

To enhance the enforceability of collateral agreements, a security agreement addendum may be attached to the customer master agreement. The agreements are generally customized. If all trades made between the two counterparties within a particular product group are netted—that is, all cities, branches, subsidiaries, or affiliates—then the collateral agreement would reflect this and thus avoid sending collateral to one location while receiving collateral from another. Similarly, cross product netting agreements may be considered in the collateral agreement. If swaps and option activity is netted across foreign exchange, interest rate, equity, and commodity derivative products, then moving collateral for one group of products while offsetting values were available from another product group would be unnecessary.

To improve efficiency in the delivery and receipt of collateral, counterparty agreements will specify minimum increments of collateral to be moved. In other words, rather than move collateral daily, it would only be moved when the mark to market value deteriorates by a set amount (for example, \$1 million). Minimum increments save staffing costs, wire fees, and other fees. The combination of high thresholds

and high increments can lower the cost of a collateral program while maintaining considerable protection against large credit losses. This valuable credit enhancement is attained with daily monitoring of both mark to market and collateral values, but infrequent movements of collateral.

In addition to thresholds, increments, triggering events, and substitution provisions, the collateral or security agreement will generally also specify the types of securities, whether haircuts or reductions will be applied to their current value, the rates of interest that will be paid to the party posting collateral, and the time frame within which collateral must be delivered.

Collateralizing or margining of losses in the OTC derivatives markets will undoubtedly grow as a means to deal with credit concerns, unless multilateral clearinghouses come into prominence or credit concerns ease. The cost of collateral programs will be minimized by the cost cutting methods outlined above, as well as by achieving economies of scale upon greater acceptance of collateral programs. The growth of collateral agreements will certainly be furthered by the trend toward standardized master agreements for derivatives, which will help save the costs of completely customized agreements.¹²

Mark to market settlement and discretionary cash settlement

Mark to market settlement is also used by counterparties to reduce bilateral credit exposure. In this case, two counterparties agree to periodically send cash to cover negative mark to markets in much the same manner that futures exchanges require full and immediate payment to cover losses incurred. The counterparty with the positive mark to market takes actual ownership of the cash and therefore legally erases the obligations of the debtor counterparty. Unfortunately, this requires both parties to continuously agree on the value of the position, which can be difficult for complex contracts. Also, it is more costly to the debtor counterparty because no earnings on the transferred assets can be accrued as in collateral arrangements. In general, counterparties are somewhat reluctant to agree to cash settlement because the benefits of such a system are more skewed toward the counterparty with the positive mark to market than collateral systems and the costs are higher to the debtor. Some master agreements now include triggering events which require mark to market settlement

in the case of a downgrade of the less creditworthy counterparty or, in some cases, either counterparty.

Whereas mark to market settlements require periodic payments on losses for ongoing contracts, discretionary cash settlement agreements permit early termination of existing contracts at a predetermined settlement date. At the outset of a 5 year contract, for example, the two counterparties would agree to actually settle up after 2 years and terminate the contract at the discretion of either counterparty. If the fixed settlement date passes, however, without either party exercising the settlement option, the contract must then be held to maturity. The methodology of marking the position to market would be agreed to at the outset. Discretionary cash settlement can be appealing since risk can be eliminated at an agreed upon date, and the cost of periodic mark to market payments or periodic collateral movements can be avoided. This is particularly useful when credit concerns for long term contracts are particularly acute.

As mentioned above, in both mark to market settlement and cash settlement agreements the counterparties must clearly articulate the means for calculating the cash settlement amount either in an appended schedule to the standard agreement or in some other document governing the relationship.

Netting services and clearinghouses

In order to aid the operational aspects of private bilateral agreements, several bilateral netting services have sprung up which provide "matching services." The two most prominent of these systems are called FXNET Ltd. and SWIFT Accord, which match outstanding transactions between two counterparties and replace them with a single settlement amount at the end of the day.¹³ Both systems avoid the telecommunication and systems costs and the inefficiencies of matching trades in each individual back office. Both systems are informational intermediaries and as such do not own the trades submitted or become involved in the settlement, which is up to the individual participants. FXNET Ltd., in operation since 1985, is owned by a consortium of 12 of the world's top twenty banks, for which Quotron Systems Inc. is the manager. Trades entered through FXNET are bilaterally netted. SWIFT Accord is owned by the Society for Worldwide Interbank Financial Telecommunication, which has a financial com-

munications network covering 3,000 financial institutions in 72 countries.

Currently, there are also two notable attempts underway to establish multilateral netting systems or clearinghouses for foreign exchange and eventually other derivatives. The credit enhancement advantages enjoyed by such arrangements are: 1) netting amongst several counterparties rather than each individually yields great operational efficiencies and reduces payment flows substantially; 2) the clearinghouses may provide limited guarantees to the trades; and 3) the clearinghouses will act as a central conduit for payments and potentially reduce settlement risk. These clearinghouses will have to be approved by the host central bank as well as meet the standards of the group of central banks whose currencies are involved.

One of the two attempts to establish multilateral netting is being organized in North America. This clearinghouse will involve two U.S. and six Canadian banks (First National Bank of Chicago, Chase Manhattan Bank, Bank of Montreal, Bank of Nova Scotia, Canadian Imperial Bank of Commerce, National Bank of Canada, Royal Bank of Canada and Toronto Dominion Bank). In 1992, the members of the North American Clearing House began using a centralized facility to match and bilaterally net trades. In 1993, the clearinghouse is scheduled to begin providing multilateral netting by novation of foreign exchange trades. It may eventually expand to include currency option and other derivatives. The North American clearinghouse will be counterparty to all matched trades in order to maintain the legal discipline of novation. It will net trades for settlement and mark to market. The clearinghouse will attempt to control the daily movements of all currencies so as to create a delivery versus payment settlement system. Clearinghouse members will be responsible for covering another member's default, with the loss sharing formula based on bilateral credit exposures, not volume. Therefore, there will be concentration exposure, counterparty exposure, and liquidity limits in place to control the risks associated with single or multiple defaults.¹⁴

The other multilateral netting system under development is called the European Clearinghouse Organization (ECHO) which is owned by fourteen European banks and is currently expected to be operative in early 1994. Its policies and

procedures will be similar to the North American initiative with some important exceptions. The legal basis will not be novation but "open offer," under which any two members' trades will belong instantly to the clearinghouse without initial reference to clearinghouse limits. Over 20 currencies will be involved rather than the seven major currencies outlined in the North American plan. Access to ECHO will be limited to the SWIFT Accord trade confirmation system. ECHO will be based in the UK and therefore the Bank of England will be the lead oversight organization.¹⁵

Conclusion

Depository institutions and other derivative market participants have reacted to increased credit risk and risk sensitivities by creating innovative and powerful credit enhancers and by greater utilization of credit reducing techniques that already existed. SPVs have the potential to alleviate credit concerns for certain classes of market participants who insist on dealing with only the highest rated entities. The successful experiences to date and the fact that the rating agencies will likely ease restrictions as they become more comfortable with the concept suggest that use of SPVs will increase in the future. SPVs are not a panacea for credit risk, however, and therefore will likely be just one methodology among many. Furthermore, regulatory concerns in commercial banking concerning deposit insurance and risk based capital may prevent commercial banks from establishing SPVs or may require a less capital intensive form.

Bilateral collateral agreements have great potential to alleviate credit concerns, especially in light of the fact they do not require regulatory or rating agency approval and thus can be used immediately. Although once thought to be cost prohibitive, collateral users have indicated the use of cost saving mechanisms such as thresholds brings down the costs to acceptable levels. The use of more standardized agreements will also lower the cost and time involved in negotiating customized agreements for each individual counterparty. Therefore, it is likely that bilateral collateral agreements will grow rapidly in the near future.

The increased use of bilateral netting between counterparties is inevitable in the years ahead, with or without collateral movement. Although there is much potential in the countries

where netting is believed to be enforceable, the success of the various initiatives to promote enforceability around the world will make for even greater potential. The increasing use of standardized cross product netting, especially across derivative product lines, will further increase the potential of bilateral netting to ease credit concerns.

Multilateral netting schemes have great credit reducing potential for derivatives and already have made progress in overcoming many obstacles in their development. However, delays in launching have prevented the systems from helping to ease the current wave of credit sensitivities and limited product coverage will

impede their usefulness in the near term. When fully operational, however, they have great potential for becoming one of the most important credit reducers of the future.

Although this article has focused on SPVs, collateralization programs, and netting schemes, it was noted that other techniques such as periodic settlement and close out mechanisms are continually being implemented. Other credit reducing techniques include guarantees, assignments, and private portfolio insurance. Continued growth in derivatives, together with ongoing credit quality concerns and regulatory scrutiny of these markets may be expected to give rise to even more innovative proposals.

FOOTNOTES

¹Liebowitz, (1992).

²"Credit implications for firms that use derivatives," *Moody's Special Comment, Moody's Investors Service*, November 1991, p. 2.

³U.S. Congress (1992).

⁴"Moody's rates the counterparty risk of Merrill Lynch Derivative Products, Inc. Aaa," *Moody's Special Report*, December 1991, p. 1.

⁵*Federal Reserve Bulletin* (1987).

⁶Novation is defined in footnote 6 of Annex 3 of the 1988 *Basle Accord* as "a bilateral contract between two counterparties under which any obligation to each other to deliver a given currency on a given date is automatically amalgamated with all other obligations for the same currency and value date, legally substituting one single net amount for the previous gross obligations."

⁷"Report on netting schemes," Bank for International Settlements, Basle, February 1989, p. 12.

⁸U.S. Congress Financial Institutions Reform, Recovery, and Enforcement Act of 1989, Pub. L. No. 101-73, 212(a), 103 Stat. 183 and 239, 1989.

⁹Emert (1992).

¹⁰"Report of the Committee on Interbank Netting Schemes of the central banks of the Group of Ten Countries," Bank for International Settlements, Basle, November 1990, p. 16.

¹¹"Treatment of bilateral master agreement netting under the 1988 Basle Accord on International Convergence of Capital Measurement and Capital Standards," Letter of Mark C. Brickell, Chairman, International Swap Dealers Association, to Richard Farrant, Chairman, Committee on Off Balance Sheet Risk Supervision, Bank for International Settlements, August 15, 1991, p. 5.

¹²Wiersum and Stocchetti (1992).

¹³"Banks eye forex matching systems," *Wall Street Computer Review*, Volume 9, Number 2, p. 46.

¹⁴"North American foreign exchange multilateral netting project status report," October 21, 1992, International Clearing Systems, Inc., Chicago, pp. 18-19.

¹⁵"ECHO plans new netting scheme," *Futures and Options Plus*, Futures and Options World, Ltd., London, July 3, 1992, p. 12.

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