Developments in Processing Over-the-Counter Derivatives

*Natasha Khan**

This article discusses the main findings of the report *New Developments in Clearing and Settlement Arrangements for OTC Derivatives* (CPSS 2007) in a Canadian context. The complete report, published by the Committee on Payment and Settlement Systems (CPSS),[1] is available on the website of the Bank for International Settlements (BIS).

The market for over-the-counter (OTC) derivatives has continued to grow exponentially in Canada and abroad.[2] The size of the global OTC derivatives market, measured by notional amount outstanding, increased at an average annual rate of 20 per cent between 1998 and 2005. As of June 2006, the total notional amount outstanding had reached US$370 trillion worldwide.

By 2005, this rapid growth, coupled with limited use of automation for processing these transactions, had caused significant backlogs in trade confirmations. The backlog created uncertainties regarding counterparty risk and credit exposure for major derivatives participants, thereby raising issues concerning financial system efficiency and stability. Prudential supervisors began to express concern in early 2005. The situation, which was particularly serious in the market for credit derivatives, was highlighted in an industry-sponsored report published in July 2005.[3]

In September 2005, prudential supervisors brought 14 major derivatives dealers together at the Federal Reserve Bank of New York to encourage an industry solution. This prompted the 14 firms to make a public commitment to decrease the backlog in the credit derivatives market.

At the same time, central banks and prudential supervisors recognized that several recent developments in the broader OTC derivatives market warranted further analysis. Thus, in February 2006, the CPSS set up a working group, composed of member central banks and the prudential supervisors of major derivatives dealers, to follow up on issues identified in an earlier report (CPSS 1998) and to identify and analyze any new issues raised by more recent developments.

The working group conducted interviews with derivatives dealers in each jurisdiction and met with industry groups, trade organizations, and infrastructure service providers. The resulting report, which complements other supervisory initiatives, provides a comprehensive view of existing arrangements and risk-management practices in the broader OTC derivatives market.

The report concludes that, although the infrastructure for processing OTC derivatives has strengthened since 1998, further action is needed to ensure that all OTC derivatives trades are confirmed in a timely fashion, to identify steps

1. The CPSS was established in 1990 as a permanent BIS committee reporting to the G-10 governors. The Committee contributes to strengthening the financial market infrastructure by promoting sound and efficient payment and settlement systems.
2. In a broad sense, an over-the-counter derivatives contract is a bilaterally negotiated transaction whose value depends on the value of one or more underlying reference assets, rates, or indexes.

* The author was a member of the working group established by the Bank for International Settlements (BIS) Committee on Payment and Settlement Systems (CPSS) that published the report discussed in this article on 16 March 2007. Members of the working group included representatives from the G-10 central banks, the Hong Kong Monetary Authority, the U.K. Financial Services Authority, the U.S. Securities and Exchange Commission, and the German Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin). Secretariat services were provided by the BIS.

3. The report (Counterparty Risk Management Policy Group II 2005) called for an industry round table to address the serious and growing backlog of unconfirmed trades in the credit derivatives market.

to mitigate the potential market impact following the close-out (default) of one or more major market participants, and to achieve open access to essential post-trade services and efficient connectivity between service providers.

The study analyzes six main issues: documentation backlog, use of collateral, use of central counterparties, prime brokerage, novations, and close-out. The first three issues were raised in the CPSS report published in 1998. The last three have been identified as relevant because of developments in the marketplace since that time.

Major Issues

Documentation backlog

Unsigned master agreements

A master agreement sets the terms and conditions for all, or for a defined subset of, transactions into which two parties, such as a dealer and an institutional investor, may enter. The practice of executing trades before signing a master agreement may create legal risk by jeopardizing a firm's ability to close out and net transactions in the event of a counterparty's default.[4]

In Canada, a master agreement must be in place to achieve the benefits of netting in the event of counterparty default.[5] Canadian insolvency statutes protect close-out netting for eligible financial contracts (EFCs).[6] (See "Important Financial System Developments," on p. 31.)

In contrast to 1998, virtually all the international dealers surveyed for this report have signed master agreements with each other. Dealers report that the majority of existing unsigned master agreements are with clients who have executed only one trade and, hence, would not benefit from netting.

Moreover, most G-10 dealers surveyed have policies in place to reduce the risks associated with unsigned master agreements. The most important policy limits the number of trades that can be executed with a particular counterparty in the absence of a signed master agreement. Most dealers require a master agreement to be signed before the first trade with non-investment-grade counterparties and before the second transaction with others. Where a master agreement has not been signed, dealers typically use a "long-form confirmation," which incorporates the industry standard form of master agreement in the confirmation. In addition, dealers routinely monitor backlogs of unsigned agreements and prioritize efforts to complete documentation based on risk of, and exposure to, a particular counterparty.[7]

Outstanding confirmations

Oral contracts are legally enforceable in most jurisdictions, including Canada. Thus, although a written confirmation is best practice, failure to confirm a trade in writing does not make the trade unenforceable. Recordings of phone conversations, emails, information from brokers (for brokered trades), exchange of payments, or margin (collateral) can serve as evidence to prove the existence of a trade. But even if the existence of a transaction is not in question, the details of a trade may later be disputed between counterparties. In addition, unconfirmed trades may allow errors in the books and records of a firm to go undetected, leading to an incorrect measurement of counterparty credit risk. This may result in payment and margin breaks.[8] Therefore, a written confirmation detailing the terms of the trade is the best practice.

In 1998, dealers reported hundreds of outstanding confirmations, with a significant portion outstanding for 90 days or more. Survey data collected by the International Swaps and Derivatives Association (ISDA 2006) show that the number

4. Netting essentially means offsetting positions or obligations with a particular counterparty, so that losses incurred on one contract can be offset by gains on other contracts in the event of counterparty default. Data from U.S. commercial banks show that netting decreased counterparty exposures by 85 per cent as of June 2006.
5. In the United States and the United Kingdom, legislation provides a strong case for the non-defaulting party to close out and net swap agreements in the event of a counterparty default, even in the absence of a signed master agreement.
6. In March 2007, the Canadian federal government introduced amendments to various acts that modernize Canadian insolvency laws with respect to EFCs.
7. Dealers also have the option of suspending trading with a counterparty that has not signed a master agreement.
8. A "payment break" refers to the failure to receive an expected payment or the receipt of an unexpected payment. A "margin break" refers to disagreements about the amount of collateral required.

of outstanding confirmations continued to rise until late 2005, when the issue began to receive increased attention from the industry. Data for the 2006 calendar year suggest that outstanding confirmations have decreased across all asset classes of OTC derivatives at large firms, but outstanding confirmations for interest rate derivatives have increased at small and medium-sized firms.[9]

In Canada, anecdotal evidence suggests that, because of lower trading volumes, Canadian dealers have not experienced the huge backlogs in credit derivatives encountered by their U.S. counterparts. However, the number of outstanding confirmations for interest rate swaps has increased over the past year across the big six Canadian banks.

Interviews with dealers across the G-10 countries indicate that, in the short run, firms use various procedures to mitigate the risks arising from unconfirmed trades. Many dealers verify the key economic terms of a trade shortly after execution while the confirmation is outstanding. Some firms believe that this step, known as "economic affirmation,"[10] is important, but others feel that completing a full confirmation as soon as possible is more beneficial because non-economic terms such as "business-day conventions," "holidays," etc., can lead to problems at other stages of the trade cycle. The CPSS study states that, despite the divergent views on the merits of economic affirmation, this is an important risk-mitigation tool if full confirmation is not expected to occur promptly, especially for complex products where full confirmation can take 30 days or more.

Most of the international dealers surveyed routinely monitor backlogs of outstanding confirmations and report progress to senior management. They have policies in place to prioritize and escalate efforts to complete confirmations based on metrics such as days outstanding (age) and the value of the transaction.

The industry recognizes that, in the long run, manual procedures for obtaining confirmations are not feasible for more standardized products, given the large volume of trades, and that automation is the key to managing confirmations. Electronic confirmation platforms currently operating include Deriv/SERV, which appears to be the dominant platform for credit derivatives; SwapsWire, which is seen as the preferred platform for interest rate swaps; SWIFTNet Accord, which is being used for foreign exchange and interest rate derivatives; and eConfirm, which offers confirmation services for OTC commodity derivatives.

Most Canadian dealers are using Deriv/SERV to confirm credit derivative trades with their interdealer counterparties. However, adoption of automated confirmation services for interest rate swaps has been slower in Canada than in some other G-10 countries. When the CPSS study was published earlier this year, Canadian dealers were not using an automated service for confirmations of interest rate swaps; confirmations were being communicated by fax. Non-Canadian dealers were using SwapsWire to confirm Canadian-dollar swaps, however. While Canadian dealers recognize the operational efficiency provided by automated confirmation services, they note that the benefits of joining such a service are limited unless counterparties are also using the service. Since the publication of the report, the first Canadian dealer has joined SwapsWire.

Use of collateral

The use of collateral to mitigate counterparty credit risk has increased dramatically since the 1998 report. Collateralization has been adopted in all major jurisdictions worldwide. At the end of 2005, in excess of US$1.3 trillion was posted in collateral to support exposure to OTC derivatives versus US$200 billion in 2000. The number of collateral agreements[11] has increased even more dramatically, from 12,000 to 110,000, over the same time period.

Collateral decreases credit risk, but it does not eliminate it. Credit risk is the risk that a

9. The survey defines large firms as those with more than 1,500 deals per week, medium firms as those with fewer than 1,500 but more than 300 deals per week, and small firms as those with fewer than 300 deals per week.
10. "Economic affirmation" (also known as trade verification) is the process through which counterparties verify approximately a dozen key economic details of a trade. This additional step is taken before the two parties begin to review the full terms of a trade.
11. Collateral agreements are legal agreements that govern the use of collateral in OTC derivatives transactions. Most collateral agreements are documented using the master agreement's credit support annex (CSA).

counterparty will not settle an obligation for full value when it is due or at any time thereafter. Using collateral decreases regulatory capital and frees up bilateral counterparty credit lines, making it possible to continue trading activity. But market movements and delays in mark-to-market valuations or margin calls can lead to uncollateralized exposures.

While the use of collateral reduces credit risk, it can increase legal, custody, operational, market-liquidity, and funding-liquidity risks. Legal risk is the risk of loss because a contract cannot be enforced or because a law or regulation is being applied in an unexpected manner. Custody risk is the risk of losing securities held in custody because of the insolvency, negligence, or fraudulent action of the custodian. Operational risk is the risk of unexpected loss caused by deficiencies in information systems or internal controls. Market-liquidity risk is the risk of loss due to a decline in the market value of the collateral, while funding-liquidity risk is the risk that a counterparty will experience demands for collateral that are too large to meet when due.

Dealer interviews suggest that significant progress has been made since 1998 in reducing legal, custody, operational, and market-liquidity risks associated with the use of collateral. There is a high degree of confidence in the legal enforceability of collateral agreements. Enhancements in collateral-management systems have decreased custody and operational risks. Market-liquidity risk is typically addressed by adequate haircuts and frequent mark-to-market valuations. The effectiveness of market participants' efforts to manage funding-liquidity risk is, however, more difficult to assess, partly because it tends to crystallize during stressed market conditions.

The CPSS report notes that the issue of incorporating collateral demands into a firm's overall risk-management procedures needs continued attention from market participants.

Central counterparty

A central counterparty (CCP), such as a clearing house, is counterparty to both sides of a trade; that is, a seller to every buyer and a buyer to every seller.

Central clearing of OTC derivatives was quite limited at the time of the 1998 report. In September 1999, SwapClear was launched as a clearing house for interdealer single-currency interest rate swaps. As of December 2006, SwapClear had cleared US$35.5 trillion in swaps. This was nearly 40 per cent of the global interdealer market for interest rate swaps in 2006.[12]

Canadian dealers are not currently members of SwapClear.[13] One of the key benefits of a CCP is multilateral netting,[14] which has the potential to reduce members' credit exposures relative to those that exist in bilateral deals. It can be argued, however, that these benefits are reduced because a CCP is unlikely to clear the full range of OTC derivatives products. This could potentially increase the credit exposures of the remaining, more complex, bilateral deals. Recent interviews with dealers suggest that this concern has decreased since 1998, and that most dealers do not view the limited coverage of SwapClear as materially affecting their decision to use the service.

Some market participants, including some Canadian dealers, believe that the primary benefits of a CCP are purely operational rather than credit related and that many of the operational benefits can be realized through other services. For instance, TriOptima's triReduce service, which is being used by Canadian dealers, has been cited as providing large operational gains by eliminating trades through a multilateral, voluntary termination service.[15] Deals that are removed from the portfolio do not have to be collateralized, and they do not require further payments,

12. In the autumn of 2006, the Canadian Derivatives Clearing Corporation (CDCC), a wholly owned subsidiary of the Montréal Exchange, launched Converge, a clearing service for combining exchange-traded and OTC equity derivatives.
13. SwapClear currently has 20 members, including some of the largest international derivatives dealers.
14. Arithmetically, netting on a multilateral basis is achieved by summing each participant's bilateral net positions with the other participants to arrive at a multilateral net position, which represents the bilateral net position between each participant and the central counterparty. This allows a reduction in counterparty risk.
15. triReduce provides a service through which participants identify trades that they wish to remove from their balance sheets, subject to a set of constraints (tolerances) relating to changes in counterparty credit exposure, market risk, and cash payments. triReduce matches the identified trades with those of other participants and terminates offsetting positions, while maintaining the participant's predefined tolerances.

which reduces both margin and payment breaks.

From a systemic perspective, a CCP concentrates risk and risk management. Thus, its potential to reduce systemic risk depends on the effectiveness of its risk-management procedures. A CCP for OTC derivatives faces two particular risk-management issues. First, more complex OTC derivatives products require the use of complex pricing models that involve model risk. Second, default procedures must accommodate the inherent illiquidity of OTC derivatives instruments.

In recognition of these issues, SwapClear has limited its service to less complex, single-currency interest rate swaps and has adapted its default procedures accordingly. Market participants must recognize the differences between the default procedures adopted by a CCP for OTC derivatives and traditional procedures used by CCPs for exchange-traded derivatives.[16] Members of a CCP should also be comfortable with the valuation models used by the CCP to price positions, since margin requirements will be based on prices derived from these models. This will affect the cost and risk of participation in the CCP.

Prime brokerage

In a prime brokerage arrangement, a prime broker agrees to intermediate specified eligible transactions between a client, such as a hedge fund, and a list of approved executing dealers.

Prime brokerage services have been offered for cash equity, fixed-income securities, and foreign exchange products for some years, but prime brokerage for OTC derivatives is a very recent phenomenon. At present, the service is offered by only a very small number of large international dealers and is geared specifically to the hedge fund community.

A prime brokerage service for derivatives allows a hedge fund to enter into trades with multiple executing dealers while using the back-office systems of a single prime broker to clear and settle those trades, thus providing operational efficiency. The service can also decrease the hedge fund's margin requirements, because all eligible trades are subject to bilateral netting.

16. See CPSS (2007) for a detailed discussion of the default-management process adopted by SwapClear.

In a typical prime brokerage arrangement for derivatives, once the executing dealer and the hedge fund have agreed to a trade, each must notify the prime broker of the terms. If the prime broker accepts the trade, it becomes a counterparty to two back-to-back trades, one with the hedge fund and the other with the executing dealer.

Canadian dealers are not currently offering prime brokerage services for derivatives,[17] but they do serve as executing dealers in prime brokerage arrangements.

The 2007 CPSS report states that all parties involved in a prime brokerage arrangement should carefully assess the legal documentation and understand their rights and responsibilities.

Novations

A novation is the replacement of a contract between two initial counterparties to an OTC derivatives trade (the transferor and the remaining party) with a new contract between the remaining party and a third party (the transferee).

Novations were rare in 1998, but the practice has increased with the growth of the hedge fund sector. When a hedge fund seeks to exit an OTC derivatives position, it often does so through a novation rather than by negotiating a termination of the contract (which may require the fund to accept the price offered by the original counterparty) or by entering into an offsetting contract (which is likely to create additional counterparty exposure).

Standard master agreements allow novations as long as the transferor obtains written consent from the original counterparty prior to the transfer. Without written consent, the remaining party has full discretion to reject the proposed novation. Dealers, however, were frequently accepting novations of credit derivatives without prior consent. This was causing errors in measuring counterparty credit risk, as well as causing payment and margin breaks. The practice was one of the major factors contributing to the huge

17. Derivatives prime brokerage places very large demands on the prime broker's back-office systems, and, as stated earlier, this service is currently offered only by some of the largest international dealers. Canadian dealers offer prime brokerage services for foreign exchange products, cash equity, and fixed-income securities.

backlog of outstanding confirmations in the credit derivatives market.

In the autumn of 2005, a group of dealers announced their support for a novation protocol crafted by ISDA for credit and interest rate derivatives. The protocol requires the transferor to obtain written consent from the original counterparty before 18:00 (in the location of the transferee) on the day that the novation is initiated. If consent is not obtained, the transferor is deemed to have two contracts, one with the original counterparty and one with the transferee.

All the dealers interviewed, including Canadian dealers, have adopted the protocol, which has been effective in achieving prompt notification and consent. The 2007 CPSS report notes that if novations become common for instruments other than credit and interest rate derivatives, the protocol will need to be extended to include these products.

Close-out

Close-out netting is an arrangement to settle all contracted, but not yet due, obligations to and claims on a counterparty by a single payment, immediately upon the occurrence of one of the default events defined in the relevant documentation. Close-out netting provisions in master agreements have been identified as a powerful tool for mitigating counterparty risk. At the time of the 1998 report, some dealers had expressed concerns about the enforceability of netting provisions. Recent discussions with dealers, however, suggest that these concerns have diminished considerably, because many jurisdictions have passed legislation supporting close-out netting.[18]

Since 1998, however, concerns have arisen about the potential for significant market disruptions in the event of the close-out of a major market participant, especially if it occurs at a time when markets are already under stress.[19]

Market participants have identified two steps that can help mitigate the potential impact of a major close-out. The first is to ensure timely and accurate information on counterparty credit exposures to major participants. Regular portfolio reconciliation[20] can facilitate this step. The second step is the routine identification of trades that can be voluntarily terminated in order to reduce positions that would need to be replaced following a default. This can be accomplished by using services, such as triReduce, that offer multilateral voluntary termination of trades.

Overall Evaluation

The clearing and settlement infrastructure for the OTC derivatives market has been significantly strengthened since 1998.

Nevertheless, more progress is needed in some areas. Firms need to extend the successful efforts to decrease confirmation backlogs in credit derivatives to other OTC derivatives products so that, over time, all standardized OTC derivatives trades are confirmed within five days of the trade date (T+5), and complex, non-standardized trades are confirmed within 30 days of the trade date (T+30). The use of automated systems to confirm trades, whenever possible, will help accomplish this goal and help prevent a future buildup of confirmation backlogs. Risks of existing unconfirmed trades can be mitigated by broader use of economic affirmations, as discussed earlier.

Anecdotal evidence suggests that Canadian dealers have not experienced significant confirmation backlogs in the credit derivatives market, but the number of outstanding confirmations has increased for interest rate swaps across the big six Canadian banks over the past year. Canadian dealers have not moved quickly to adopt automated services for confirming interest rate swaps, compared with dealers in some other G-10 countries. Increased use of automation in confirming interest rate swaps will help Canadian dealers confirm these trades in a timely fashion and will prevent a future backlog.

The 2007 CPSS report notes that daily portfolio reconciliation with active counterparties is appropriate for firms that are frequently involved

18. As stated earlier, close-out netting is supported by Canadian insolvency statutes for eligible financial contracts.
19. Fear of major market disruptions caused by the closing out and replacement of positions with Long-Term Capital Management (LTCM) prompted a consortium of LTCM's counterparties to recapitalize the fund, thereby preventing a close-out.
20. Portfolio reconciliation involves verifying the existence of all outstanding trades and comparing their principal economic terms.

in novations, terminations, or amendments of contracts. This will help ensure that firms have accurate records on their counterparty credit exposures. The report also concludes that market participants should work together to identify further steps that can mitigate the potential market impact of the close-out of one or more major market participants.

Over time, market infrastructure will continue to evolve. With increased centralization, open access to essential post-trade services and convenient connectivity to their systems will assume greater importance.

Centralized processing of trades and post-trade events may leave the infrastructure more susceptible to disruptions at single points of failure. Supervisors and central banks will need to determine whether existing standards for operational reliability of securities settlement systems and CCPs (CPSS-IOSCO 2001 and 2004) need to be applied to providers of clearing and settlement services for OTC derivatives that are not already subject to these standards.

In addition, if an entity other than a CCP starts settling payments associated with OTC derivatives on a multilateral net basis, central banks and supervisors will need to consider whether principles for systemically important payment systems (CPSS 2001) should be applied to the money settlement arrangements.

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