
2005 ISDA Collateral Guidelines

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INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, INC.

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ABOUT ISDA

The International Swaps and Derivatives Association, Inc. (“ISDA”) is the global trade association representing participants in the privately negotiated derivatives industry, a business covering swaps and options across all asset classes (interest rate, currency, commodity, energy, credit and equity). ISDA was chartered in 1985, and today numbers over 600 member institutions from 46 countries on six continents. These members include most of the world's major institutions who deal in, as well as leading end-users of, privately negotiated derivatives. The membership also includes associated service providers and consultants.

Since its inception, ISDA has pioneered efforts to identify and reduce the sources of risk in the derivatives and risk management business. Among its most notable accomplishments are: developing the ISDA Master Agreement; publishing a wide range of related documentation materials and instruments covering a variety of transaction types; producing legal opinions on the enforceability of netting and collateral arrangements (available only to ISDA members); securing recognition of the risk-reducing effects of netting in determining capital requirements; promoting sound risk management practices, and advancing the understanding and treatment of derivatives and risk management from public policy and regulatory capital perspectives.

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2005 ISDA COLLATERAL GUIDELINES

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2005 ISDA COLLATERAL GUIDELINES

EXECUTIVE SUMMARY

1. The 2005 ISDA Collateral Guidelines (the “2005 Guidelines”) update and considerably expand upon the themes of the 1998 ISDA Guidelines for Collateral Practitioners. The objectives of the document are to:
 - document the current state of collateral management in the privately negotiated derivatives market;
 - discuss the nature and mechanics of collateralization;
 - describe how the collateral management function operates and interacts with other parts of the firm;
 - identify the benefits and risks of collateralization; and
 - outline current trends and possible future developments in the field.
2. Collateralization in the privately negotiated derivatives market has grown at a sustained, rapid pace over the past decade. At the end of 2003 (the date of the last published ISDA Margin Survey) in excess of US\$1 trillion in collateral was reported to be in circulation, across more than 54,000 collateral agreements.
3. Collateral is a form of credit risk mitigation. Coupled with other techniques such as traditional credit analysis, capital reserving strategies, netting, selective termination and credit derivatives, collateralization is part of an ever more sophisticated tool-set available to credit risk managers.
4. Collateralization operates through improving the recovery rate in a post-default situation, and thus decreases the loss given default. This leads to lower expected losses in a collateralized portfolio, and thus allows both economic and regulatory capital reserves to be reduced. Where firms explicitly or implicitly charge for credit risk when pricing deals, this can improve deal pricing.
5. However, collateralization introduces other risks, principally legal and operational, in exchange for the beneficial effects on credit risk. These other forms of risk need to be carefully weighed against the benefits and appropriate risk measurement and management strategies put in place.
6. The collateral management function performs a range of important and unique roles within a firm. The function is most often located organizationally within operations or credit, but regardless of organization it must interface with sales and marketing, corporate treasury, legal, credit, operations and controlling functions.

7. This cross-functional role places special demands upon collateral practitioners. Even as certain commoditized parts of the collateral management function are outsourced by some firms, the importance of the staff performing more value-added and risk-oriented roles are being increased.
8. Collateral agreements for the privately negotiated derivatives market are most often documented using the several available forms of ISDA credit support document. These have proven highly successful since their first introduction in 1994 and ISDA will continue to monitor the views of its member firms on the credit support documents and respond appropriately going forward.
9. Through the work of ISDA and individual firms, the legal risk issues relating to collateralization have been well characterized. Effective risk mitigation or avoidance strategies exist for most legal risk issues. Extensive research into this area continues and multi-national efforts are underway to clarify or improve certain key points of law in this field.
10. The process of making calls for collateral (or “margin calls”) has become a well-defined and operationally sophisticated procedure at most firms. In those firms, it starts with active involvement by collateral practitioners in the design, negotiation and set-up of new collateral agreements.
11. The day-to-day processes of portfolio reconciliation, collateral adequacy computation (i.e. computing whether the amount of collateral currently held is adequate as compared to the amount required to be held under the collateral agreement), calling for margin and the subsequent settlement cycles are well established and consistent across the market.
12. The timing of margin calls has typically been accelerated over recent years, especially in the case of collateralized relationships between banks and hedge funds. This acceleration has reduced risk in this segment of the market, and also led to operational simplification, because margin calls are made often and settled within the same business day. The penalty has been increased operational tempo, which has been addressed through staffing and technology investments.
13. The selection of collateral assets is a critical factor in the overall success of a collateral agreement. There is a wide range of selection criteria that should be considered, including the price volatility, liquidity and credit quality of the assets.
14. Valuing transactions and collateral assets is a necessary part of the collateralization process. This is a complex area with some diversity of practice across the market. It is, however, an area where firms are focusing considerable energy because of the synergies with the broader need to provide client valuation statements.
15. A clear trend across the market is the move towards greater automation between firms. Whereas great investments have been made in the technology used within

firms to manage privately negotiated derivatives and the related collateral process, the technological links between firms are now receiving attention. Key to this is the emergence of data standards, which permit all firms to communicate in a common language. The Financial Products Mark-up Language (“FpML”) initiative managed by ISDA and the related Electronic Data Interchange standard sponsored by the ISDA Collateral Committee have led to some advances in this field.

16. An emerging trend is the convergence seen between certain parts of collateral management, prime brokerage, exchange-traded derivatives and client service. Driven very much from the client perspective, some firms recognize the reporting, operational, risk management and client service synergies that exist between these different disciplines, and moving to capitalize on them.
17. ISDA thanks the contributors from its member firms who have worked to create the 2005 Guidelines over the past 18 months. ISDA hopes that this document will serve as a useful benchmark of the current state of collateralization, and will assist practitioners in extending the decade-long record of impressive growth of collateralization in the privately negotiated derivatives market and effectiveness as a credit risk mitigant.

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CHAPTER 1 – INTRODUCTION

1.1 Objectives of the 2005 Guidelines

The 2005 ISDA Collateral Guidelines (the “2005 Guidelines”) are intended to:

- document the state of collateralization in the privately negotiated derivatives market as of early 2005;
- discuss the nature and mechanics of collateralization, including the key legal foundations;
- describe the interaction of the collateral management function with other areas of the firm;
- identify the benefits and risks of collateralization; and
- outline current trends and possible future developments in collateralization.

In publishing the 2005 Guidelines, ISDA seeks to provide a comprehensive review of current collateralization practice that will be useful to collateral practitioners in the market and also informative for financial industry regulators and legislative bodies around the world.

1.2 Background to the 2005 Guidelines

The 2005 Guidelines are an update to and a considerable expansion of the “Guidelines for Collateral Practitioners” published by ISDA in 1998 (the “1998 Guidelines”). We have also taken the opportunity to revisit some of the recommendations made in the ISDA 1999 Collateral Review (the “1999 Review”).

The 1998 Guidelines and the 1999 Review have, combined with various ISDA Margin Surveys published from 1998 to 2004, grown into a substantial body of work that has been instrumental in the controlled and prudential growth in the use of collateralization over the past decade. Over that period the value of collateralization as an effective credit risk mitigant within the derivatives market context has been proven on several occasions.

Some seven years ago the 1998 Guidelines were published in response to the demands of a relatively new but growing business activity in ISDA member firms, namely collateral management. The 1998 Guidelines were drafted to assist practitioners in designing policies, adopting best practices, implementing systems and establishing operations related to the pledging of collateral for privately negotiated derivatives transactions. The 1998 Guidelines were published against the backdrop of global market events including the 1997 Asian crisis, which escalated into global turmoil following Russia's default on its debt in August

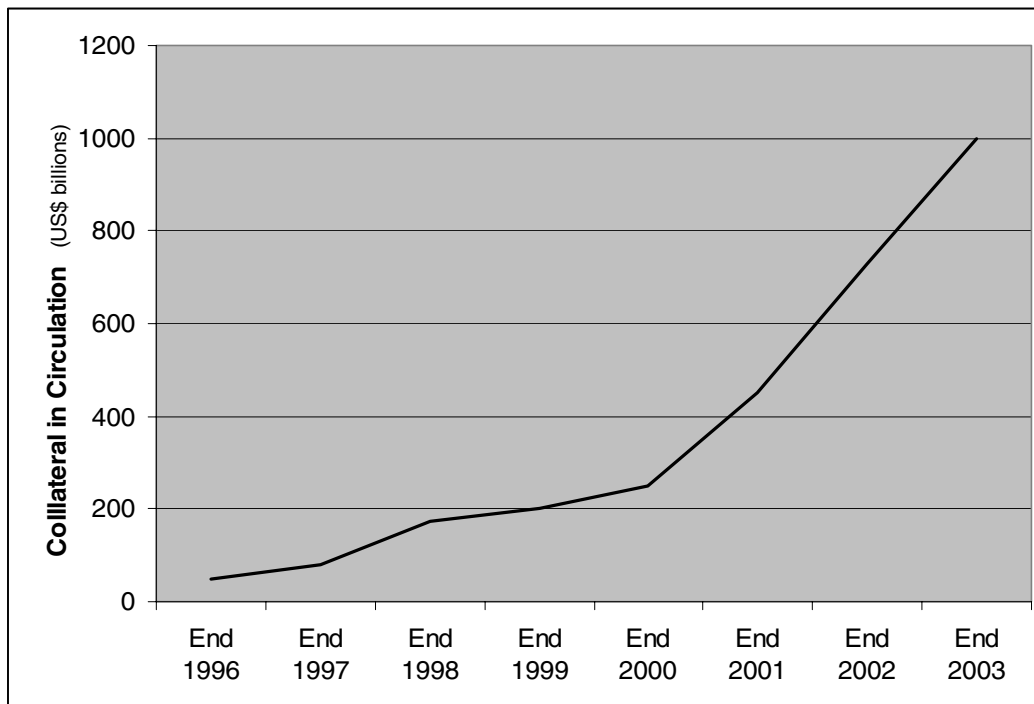
1998. The Russian default subsequently led to the Long Term Capital Management crisis. The effectiveness of collateral as a credit risk protection strategy was tested by some of the most volatile market conditions experienced in the 1990s.

The 1999 Review, developed as a response to the increased industry focus on collateralization and the global market volatility in the late 1990s, emphasized that collateral provides highly effective protection against credit risk. However, collateralization is not a substitute for sound credit analysis. The 1999 Review also highlighted some of the operational, legal and other risks that collateralization presents. Twenty-two recommendations were outlined for practitioners in an effort to identify and implement improvements in market practice. While much progress has been made in many of these areas, other recommendations are still relevant today.

Collateral management has come a long way since 1998. It has become a large function, with several of the larger financial institutions employing more than 100 staff in the collateral management area. Collateralization has also had a broad impact across all types of derivatives market participants, from hedge funds to corporations, from government debt offices to small municipalities, from supranational development banks to private banking clients.

ISDA's Collateral Committee began estimating market size in 1996 and systematically surveyed its members annually from 1998 onwards, in order to understand the evolving nature of the trend towards collateralization. Figure 1 below illustrates the sustained, rapid expansion that has been seen in the use of collateral.

Figure 1 – Growth in Privately Negotiated Derivatives Collateralization 1996-2003¹



In the past decade more than 54,000² collateral agreements have been executed, spanning the entire range of derivatives users. Collateral has become a critically important function to control credit risk across the derivatives market and thus to achieve higher returns and more efficient use of capital for derivatives dealers and end-users alike.

This growing activity and importance led ISDA to initiate a project in late 2003 to update and expand upon the 1998 Guidelines. Four working groups were formed to discuss: collateral management and documentation; the margin call process and managing collateral; risk management; technology products and services and industry trends and initiatives. The output of these working groups formed the basis of the analysis and recommendations outlined in the 2005 Guidelines.

1.3 Outline of the 2005 Guidelines

The 2005 Guidelines take a comprehensive approach to the many different facets of collateral management. Following this Introduction, Chapter 2 deals with **Collateral as a Risk Management Tool**. Collateralization is a tool primarily used to mitigate credit risk, and therefore it is important that we start by looking at the nature of credit risk and the mechanisms by which it is impacted by collateral. In this chapter we also discuss the

¹ Data sourced from ISDA Margin Surveys and 1999 Review for years 1998 to 2003; see <http://www.isda.org>. For earlier years, data based on collateral practitioner estimates presented at ISDA annual general meetings and other conferences.

² Source: 2004 ISDA Margin Survey, <http://www.isda.org>.

pros and cons of collateralization, and focus in particular on the new risks arising from the collateralization process.

Chapter 3, **The Collateral Management Function**, focuses on the operational initiation of a collateral agreement that has been executed, including the mechanics of establishing a collateral account, the valuation of the collateral and counterparty relationship management.

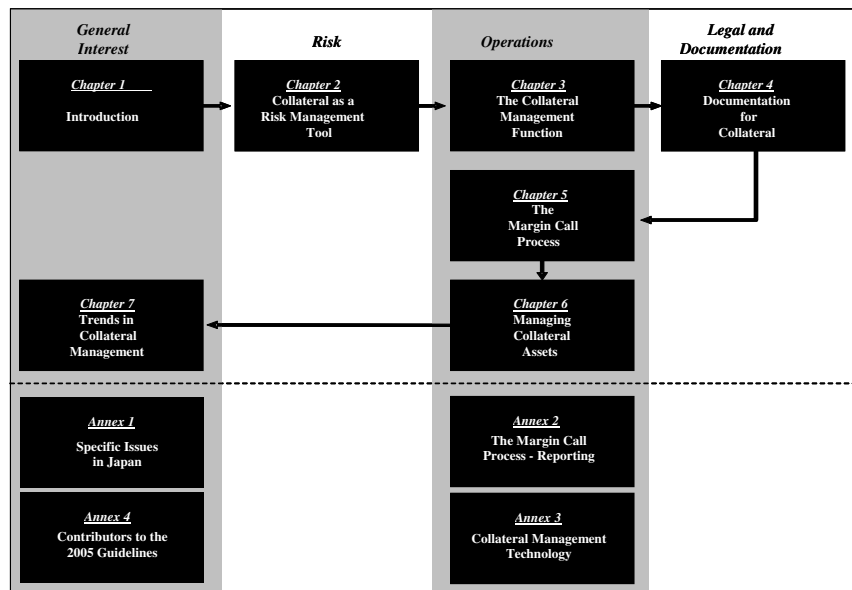
Chapter 4 addresses the complex topic of **Documentation for Collateral**. In this chapter we discuss the selection and structuring of the appropriate collateral documentation, including a review of the available document forms. The broad array of legal issues involved with creating, perfecting and enforcing legal rights over collateral is also examined.

In Chapter 5 we focus on **The Margin Call Process**. This chapter provides an in-depth review of the many aspects of making margin calls, and the operational process that follows a margin call.

Managing Collateral Assets is the subject of Chapter 6, where we examine the criteria for the optimal selection of collateral assets and then review the main related risk issues.

Finally, in Chapter 7, we describe some of the **Trends in Collateral Management**.

We have not aimed chapters specifically towards credit risk managers or operations professionals or attorneys, and each chapter contains material which may be relevant and of interest to all areas. Readers are encouraged to develop a broad understanding of all of the facets covered in the 2005 Guidelines. The following map may be helpful in understanding the flow between the chapters and the general interest areas upon which each focuses:



1.4 Important Notices

The 2005 Guidelines reflect the state of development as of early 2005. However, in an area as dynamic as collateral management for privately negotiated derivatives transactions, it is important for each firm to continue to monitor developments in the area and changing market standards. New types of transaction are now collateralized, new types of collateral are accepted, regulatory rules have changed regarding capital requirements for collateralized transactions, and the legal environment has changed since 1998. With the passage of time beyond the date of publication of the 2005 Guidelines, we expect further significant changes, for example with the implementation of the new Basel Capital Accord.

Each firm manages counterparty relationships according to its own criteria and a different mix of product and business lines, and structures its operations and systems requirements to meet the needs of its own portfolio of businesses and counterparties. One or all of these factors may result in differing approaches and standards for collateralization. It is acknowledged that not all practices described in the 2005 Guidelines are relevant to all participants in the industry. Each firm that manages collateral must assess the recommendations and determine how they relate to its business objectives and resources. Additionally, not all of the terms used in the 2005 Guidelines for functions and processes are necessarily appropriate for each firm.

The 2005 Guidelines discuss legal issues from time to time. These discussions are intended to give general guidance, not legal advice, and to promote a better understanding of the basic principles that underpin collateral arrangements for privately negotiated derivatives transactions. In practice, the law relating to collateral is complex and varies substantially from jurisdiction to jurisdiction. **The specific facts and circumstances of a particular business situation will determine the applicable legal position, and the precise documentation and negotiation of each collateral arrangement. The 2005 Guidelines do not purport to be (and should not be considered to be) a guide to, or explanation of, all issues or considerations relevant in establishing or documenting a collateral relationship. PARTIES SHOULD, THEREFORE, CONSULT THEIR LEGAL ADVISORS AND ANY OTHER ADVISORS THEY DEEM APPROPRIATE, INCLUDING, BUT NOT LIMITED TO, FISCAL, MONETARY, ACCOUNTING AND REGULATORY EXPERTS, BEFORE COMMENCING A COLLATERAL RELATIONSHIP.**

ISDA ASSUMES NO RESPONSIBILITY FOR ANY USE TO WHICH THE 2005 GUIDELINES OR ANY ISDA DOCUMENT MAY BE PUT.

Finally, it should be noted that capitalized terms in the body of the text are from the ISDA Credit Support Documents (“CSDs”), namely: the 1995 ISDA Credit Support Deed subject to English law (the “English Deed”); the 1994 ISDA Credit Support Annex subject to New York law (the “New York Annex”); the 1995 ISDA Credit Support Annexes subject to English and Japanese laws (respectively, the “English Annex” and the “Japanese Annex”); and the 2001 ISDA Margin Supplement (the “2001 Supplement”) which incorporates the

2001 ISDA Margin Provisions (the “2001 Provisions”). Readers are recommended to read the 2005 Guidelines in close conjunction with these documents, which are available at <http://www.isda.org>.

1.5 Acknowledgments

The 2005 Guidelines, the 1999 Collateral Review and the 1998 Guidelines would not have been produced had it not been for the leadership, talent, dedication and sheer enthusiasm of the co-chairs of ISDA's Collateral Committee over the years. David Maloy, Mark Jennis, Robert McWilliam and Michael Clarke have witnessed the growth of derivatives collateralization first-hand from its infancy. It is due to their efforts that ISDA first formed a Committee solely dedicated to privately negotiated derivatives collateralization. Under the strong leadership of these Chairmen, ISDA's Collateral Committee has worked to promote the use of collateral and to increase the efficient functioning of collateralization as a risk mitigant. Whether through the publication of the ISDA Collateral Asset Definitions, the 2001 Provisions, ISDA's annual Margin Surveys or by educating the industry about the benefits of collateral, the co-chairs have always encouraged discussion and analysis of relevant issues within a forum of common interests.

ISDA is very grateful to David, Mark, Robert and Michael for their work on this final project as co-chairs of the Collateral Committee, and for their support and dedication over the years.

CHAPTER 2 – COLLATERAL AS A RISK MANAGEMENT TOOL

Collateralization is a credit risk reduction tool that has been used for centuries in a wide variety of situations. In the 2005 Guidelines, we will focus exclusively on collateralization in the modern financial markets, and in particular on the use of collateral to manage the credit risk associated with financial derivatives transactions.

The word “collateral” comes from the Latin collateralis, which means something that is to the side, or not direct. In the case of a privately negotiated derivatives transaction, the essential mechanism by which collateralization works is to provide an asset of value that is to the side of the primary transaction; in the event of default on the primary transaction, the collateral receiver has recourse to the collateral asset and can thus indirectly make good any loss suffered.

In this chapter we shall examine the nature of the credit risk arising from the primary transaction and the manner in which the collateral asset can be viewed as mitigating that risk. We will also note how collateralization may at the same time give rise to new risks, such as operational and legal risk.

2.1 Credit Risk and Methods of Mitigation

What is credit risk? Credit risk is the danger that a firm will not receive an amount of money it is owed because the party that owes the firm the money is unable to pay and defaults on its obligation. Credit risk exists whenever a firm has a relationship where a counterparty has an obligation to make payments in the future.

There are five potential ways to deal with this credit risk arising from a transaction:

- (a) **Avoid the risk – do not enter into the transaction in the first place.** This is the concept underlying the traditional practice of credit approval and credit scoring.
- (b) **Be financially strong enough to accept the risk of non-payment.** This is the concept underlying the minimum capital requirements set by bank regulators, but can be applied more generally to any type of organization – if a firm wishes to adopt this approach, it needs to have enough capital set aside so that if the default event occurs it will be able to absorb the loss and continue business.
- (c) **Make the risk as small as possible.** This concept is the foundation for the development of close-out netting documents, such as the ISDA Master Agreement. If default occurs, these documents act to consolidate multiple obligations between two parties down to a single net amount. This inherently reduces the risk between the parties, and has been widely applied to the derivatives market over the past 20 years, with a high degree of success. Another method used to reduce the credit risk of a transaction to the smallest

possible level is to introduce risk-reducing structural features into individual transactions, such as elective termination rights,³ single swap resets and payment netting within transactions.

- (d) **Get somebody else to reimburse your credit losses.** This concept underlies the insurance, financial guaranty and credit derivatives markets.⁴ The credit risk of the transaction is passed on to a third party, either partially or wholly, which party may in return receive some defined payment(s). The credit derivatives market has grown from US\$919 billion notional outstanding at the end of 2001 to US\$5,440 billion notional outstanding amount in mid-2004.⁵ If credit risk is transferred to a third party, clearly that generates its own credit default risk—what if the insurer, guarantor or credit derivatives counterparty fails to pay when due?
- (e) **Obtain the right of recourse to some asset of value that you can sell in the event of default on the transaction.** Ideally firms would like an asset of stable and predictable value; an asset that is not linked to the underlying transaction in any way; and an asset that can be sold quickly and easily if the need arises. This is the concept of collateralization. Typical assets used as collateral include: cash, debt and equity securities, and letters of credit. As with the third party risk transfer mechanisms noted above, collateralization (except for cash collateral) may introduce the contingent credit risk of non-performance by the third party (for example, default by the issuer of the debt securities). It also introduces many other risks associated with the holding, seizure, pricing and liquidation of the collateral assets.

It is important to consider collateralization in this broader context of a spectrum of credit risk mitigation tools (Figure 2 below).

³ Also known as “break clauses” or “credit puts”, these provisions generally allow one party to force the unwinding of a transaction before the scheduled termination date, in response to credit or other concerns that may emerge.

⁴ It should be noted that although the insurance, financial guaranty and credit derivatives markets all facilitate the transfer of credit losses in certain defined circumstances to third parties, these products all work via different mechanisms and are distinctly different from one another in terms of contract, risk, effectiveness and cost. Indeed, some of these products, in particular credit derivatives transactions, may themselves be collateralized.

⁵ Source: ISDA 2004 Mid-Year Market Survey, <http://www.isda.org>.

Figure 2 – The Spectrum of Credit Risk Mitigation Tools

| Risk Avoidance | Capital Strength to Absorb Losses | Structuring for Reduced Transaction Risk | Risk Transfer to Third Parties | Risk Transfer to Collateral Assets |
|--|---|---|---------------------------------------|--|
| Counterparty credit analysis / scoring | Large credit loss reserves relative to likely default scenarios | Elective Termination Rights | Credit Insurance | Cash collateral |
| Credit due diligence | | Single Swap Reset | Financial Guarantees | Debt and Equity Securities collateral |
| Transaction permissioning | | Payment Netting | Credit Derivatives | Letters of Credit |
| | | Close-Out Netting | | Security over real estate |
| | | Selective termination of contracts | | Physical assets and commodities collateral |
| | | | | Pledged receivables or future production |

Collateralization is one form of credit risk mitigation, and a very important one for the derivatives markets. Respondents to the 2004 ISDA Margin Survey report that approximately 50% of their privately negotiated derivatives transactions are secured by collateral arrangements, as measured both by trade numbers and by trade exposure. However there are other mitigation methods available, and in some cases these are used as complementary or alternative tools to address specific risk situations.

2.2 Key Concepts in Credit Risk

In the 2005 Guidelines we do not provide a full discourse on credit risk, and the reader is referred to any of the numerous published texts that address this topic in detail.⁶ It is, however, useful to introduce some credit risk concepts in more detail when reviewing the impact of collateral on credit risk, as we shall do shortly.

Credit Exposure

Credit exposure is a measure of the amount of the loss that would be suffered if a firm's counterparty were to default. There are two variants:

Current Credit Exposure (also commonly called mark-to-market or replacement value)

⁶ For suggested texts, refer to “Bibliography of Educational Resources”, <http://www.isda.org>.

This is the amount one would lose if default occurred now. Consider a swap between parties A and B. This transaction will involve cash flows due from A to B and other cash flows due from B to A over its lifetime. By calculating the sum of the present value of all the future cash flows for the swap we can calculate its mark-to-market (also known as “MTM”) value.⁷ In other words, we can calculate how much a hypothetical third party would pay (or need to receive) in order to enter into a similar swap today, i.e. the replacement cost of the swap. This is the value that one party loses (or gains) when the other defaults. The mark-to-market value of a swap will have a single value, $+x$ from the perspective of one party and $-x$ from the perspective of the other. In practice, the calculation of the replacement value involves other factors, such as whether to account for the relative credit spread differences between A, B and the hypothetical third party.

Potential Future Credit Exposure

This is the amount that one would lose if default occurred at some future date. For certain types of transaction (for example, a loan of US\$100) this amount is readily predictable. However, for derivatives transactions there are a number of unknown factors and therefore estimation techniques have to be used to try to predict the future. Most models are based on some statistical foundation that generates a universe of specific exposure values that may exist in the future. Some of these potential outcomes are more likely than others, and so the universe of all potential outcomes is statistically analyzed to arrive at the most likely potential future credit exposure over some defined timeframe. The statistical confidence level used is a definable input to the process, and the use of different confidence levels gives rise to concepts such as “peak exposure” (normally a very high confidence level such as 95%, 99% or 99.9%) and “average exposure” (normally 50% confidence level). Individual firms have unique variations on this general theme.

⁷ The mark-to-market value of a transaction is the sum of the present values of all of the future cashflows due to be paid (generally signed negative) or received (generally signed positive) during the remaining lifetime of the transaction. The present value of a future cashflow is found by discounting its future amount back to today’s date, using an appropriate discount rate for the currency and tenor of the cashflow. The mark-to-market value represents the composite value in today’s money of the remaining portion of the transaction. For certain types of transaction not all of the future cashflows may be knowable; in these cases they must be estimated using appropriate yield curves, and, where necessary, option theory.

Default Probability

Default probability is the likelihood (expressed as a percentage) of a counterparty defaulting on its payment obligations within some defined time period (normally a one-year horizon is used). The probability of default increases the farther away in time the payment is expected, since every additional day increases the possibility that some event may cause an inability to pay. Default probabilities can be analyzed for certain general classes of counterparty based on historical observations or as observed in the credit default swap market.

In a collateralized situation, we also need to consider the “two-name” double-default risk, meaning the possibility that both the counterparty and the issuer of the collateral assets will default at approximately the same point in time. Assuming that the condition of the counterparty and the collateral asset issuer are not correlated in any material way, the compound default probability is lower than the single default probability for either the counterparty or the issuer.

Loss Given Default

Loss given default is an estimate of the proportion of the credit exposure that would become an actual loss upon default. It is defined as “one minus the recovery rate”. The overall recovery rate is affected by three main factors:

Collateral

Any assets held as collateral will help reduce the loss given default, provided that the collateral receiver has a valid, enforceable claim to the assets, that their valuation is not distressed, and that they can be promptly liquidated and the proceeds applied against the loss.

Credit Derivatives, Insurance and Other Mitigants

As with collateral, the beneficial effects of these alternate credit risk mitigants will reduce the loss given default.

Recoveries as a General Creditor

Even in the absence of any advantageous position as a secured creditor, there will often be a proportion of the defaulted obligation that can be recovered post-default through applicable bankruptcy, reorganization, administration or conservation processes. Recovery rates can be estimated based on historical observations for general classes of counterparty. For companies rich in tangible, saleable assets the recovery rate may be high and even approach 100%. Most companies have much lower recovery rates, and in the case of companies with few tangible assets the recovery rate may be zero.

Expected Loss

Expected loss is an estimate of the overall economic risk of a particular credit position that may be subject to a default event. It combines the three key factors of:

- potential credit exposure;
- default probability (which tells us how likely a default event is to have occurred by that future date); and
- loss given default (which tells us what proportion of our credit exposure is anticipated to represent a loss, net of the beneficial effects of post-default recovery from various sources).

These are related thus:

Expected loss = potential credit exposure x loss given default x default probability

2.3 The Impact of Collateral on Credit Risk

As we have used the term in the 2005 Guidelines, “credit risk” is a general concept. While it may be sufficient for general purposes to assert that collateralization reduces credit risk, collateral practitioners should be aware that this statement is not always true. Practitioners should also understand the precise mechanisms through which collateralization does impact credit risk.

In Figure 3 overleaf we summarize the relationship between collateral and each of the key credit risk concepts introduced in the preceding section.

The mechanism by which collateral provides benefit is through improvement of the recovery rate. Collateral does not make it more or less likely that a counterparty will default and does not change the value of a defaulted transaction. Where collateral acts post-default it is to increase the amount of recovery made to offset the loss.

While it is important to understand this precise path of effect of collateral, we do note here that firms take into account the effect of collateral in their credit risk calculations in many different ways. Although not strictly a reflection of the action of collateral upon recovery rate, many firms will subtract collateral balances held or projected to be held from their calculations of current credit exposure and potential future credit exposure. It is important to understand that most of these types of analytical implementation presume collateral rights to be valid and enforceable, which may not always be the case.

Figure 3 – The Impact of Collateralization on Several Key Credit Risk Metrics

| <u>Credit Risk Metric</u> | <u>Impact of Collateralization</u> |
|---|---|
| Current credit exposure (or mark-to-market or replacement value) | A positive balance of collateral currently held may offset a positive mark-to-market value if default were to occur now, assuming the collateral is valid and enforceable. |
| Potential future credit exposure | A positive balance of collateral held at some future date may offset a positive mark-to-market value if default were to occur at that future date, assuming the collateral is valid and enforceable. |
| Default probability (of counterparty) | Not affected by collateral at all. |
| “Two Name” compound default probability (for near-simultaneous default of the counterparty and the collateral asset issuer) | Although the probability of default of the counterparty is not reduced by collateral, the overall compound default probability for the package of transaction and collateral is smaller than the base default probability for the counterparty. |
| Recovery rate | May be increased by collateral held, assuming the collateral is valid and enforceable. |
| Loss given default | Incorporates recovery rate, and therefore may be reduced by the beneficial impact of collateral on recovery rate. |
| Expected loss | Reduced by collateralization. |

We mentioned earlier that collateralization may not always reduce credit risk – how can this be?

There are three mechanisms by which collateralization may *increase* credit risk:

Incomplete Netting Set

Typically, a set of transactions between parties A and B are netted together and collateral is required to cover the net mark-to-market value. If the netting set does not contain all of the transactions between A and B, then the loss given default may be increased, depending on the extent to which the collateral provider has, as

a matter of law, recourse to the collateral assets following default. Depending on the legal regime, the collateral provider may retain some direct recourse to the collateral assets in these circumstances where the collateral arrangement is a security interest arrangement and there has been no rehypothecation.⁸

Figure 4 provides an illustration of the issue. It can be readily seen that partial collateralization of the portfolio results in a worse outcome than either collateralization of the full portfolio or even no collateralization at all. Unfortunately, the incomplete netting set issue is all too common due to the exclusion of certain product positions from the collateral calculation, often for operational reasons or due to technology limitations. Anecdotal evidence over the past decade suggests that firms have lost money in practice as a result of this very real form of operational risk.

Figure 4 – Example of the Incomplete Netting Set⁹

| Complete Portfolio of Transactions between Parties A and B | | Trade id | Product | MTM value from A's perspective |
|---|--|----------------|-------------------------|--|
| Party A | Portfolio comprising Swaps, OTC FX Options, Equity Derivatives | Party B | Party B defaults | 1 Swap (\$5,000,000) |
| | | | | 2 Swap (\$4,000,000) |
| | | | | 3 Swap (\$1,500,000) |
| | | | | 4 FX Option (\$2,000,000) |
| | | | | 5 FX Option (\$1,000,000) |
| | | | | 6 Equity Derivative (\$3,000,000) |
| | | | | 7 Equity Derivative (\$2,000,000) |
| Documentation 1992 ISDA Master Agreement plus 1994 ISDA Credit Support Annex NY law with \$500,000 unsecured threshold for both | | | | |
| Case 1 No Collateral Agreement (Trade ids 1-7) | | | | |
| Close Out Calculation | | | | |
| Net position upon default (all) | | 3,500,000 | | A is exposed to B |
| Net loss for A | | 3,500,000 | | |
| Case 2 Collateral Agreement with All Products Covered (Trade ids 1-7) | | | | |
| Collateral Calculation | | | | |
| Netted MTM for covered products | | 3,500,000 | | A is exposed to B |
| Less \$500,000 unsecured | | 500,000 | | |
| Collateral amount | | 3,000,000 | | delivered from B to A. |
| Close Out Calculation | | | | |
| True net position upon default (all) | | 3,500,000 | | A is exposed to B. |
| Less collateral amount delivered by B to | | 3,000,000 | | |
| Net loss after collateral for A | | 500,000 | | |
| Case 3 Only Swaps and FX Options covered by Collateral Agreement (Trade ids 1-5) | | | | |
| Collateral Calculation | | | | |
| Netted MTM for covered products | | (1,500,000) | | B is exposed to A for the covered products |
| Less \$500,000 unsecured | | 500,000 | | |
| Collateral amount | | (1,000,000) | | delivered from A to B. |
| Close Out Calculation | | | | |
| True net position upon default (all) | | 3,500,000 | | |
| Plus collateral amount delivered by A to | | 1,000,000 | | A is exposed to B. |
| Net loss after collateral for A | | 4,500,000 | | |

The incomplete netting set has a simple remedy – to capture 100% of the exposure positions between the parties in the collateral calculation. This is often logistically hard to achieve, but there is clear recognition of this issue amongst

⁸ Rehypothecation rights permit a party receiving collateral to re-pledge, and is often referred in the market to more broadly encompass other re-use of, the collateral assets.

⁹ “OTC” in Figure 4 means over-the-counter; another way of referring to privately negotiated derivatives transactions.

many collateral practitioners, and there has been a sustained move to implement comprehensive netting sets at most firms.

Initial Margin

This issue exists from the perspective of any party required to post initial margin (called “Independent Amount” in the CSDs). If party A has posted initial margin to party B, and party B defaults at a time when the net mark-to-market of the portfolio is positive to A (i.e. A has credit exposure to B at that time), then A’s loss given default will be equal to the mark-to-market value of the portfolio *plus* the amount of initial margin posted. Had the two parties not entered into the collateral agreement, A’s loss would have been limited to the mark-to-market value of the portfolio only. The initial margin issue arises only where initial margin is posted, which is limited to a subset of collateral agreements, often with hedge funds. In these situations initial margin is actually serving a valuable purpose, providing critical protection against adverse changes in exposure in the case of one party, and permitting access to valuable credit facilities and derivatives instruments in the case of the other party. Therefore the initial margin issue is an undesirable by-product of a desirable practice, and thus tolerated; however, prudent practice will be to monitor the extent of the additional potential risk. Again, the extent to which the issue arises will depend on the extent to which, depending on the legal regime, the collateral provider has recourse to the collateral assets following default.

Over-Collateralization

This is essentially the same issue as the initial margin issue mentioned above, but arises differently. In bilateral collateral agreements, delivery of collateral to a counterparty will increase credit exposure if rehypothecation rights over the collateral are granted and there is any degree of over-collateralization. This credit exposure can arise due to market movements, but also due to coupon and principal payments on swaps, which may cause a position to increase in value, and therefore lead to a temporary over-collateralization. Consider party A which has delivered collateral to party B valued at US\$100 to cover an exposure of US\$100 (no thresholds in this example). If the mark-to-market value of the exposure position reduces to US\$90, then A will have over-collateralized by US\$10 until such time as the excess is recalled. If, in the meantime, B were to default then party A would be an unsecured creditor for the excess US\$10 of collateral. The remedy to this problem is frequent and vigilant monitoring of collateral balances, coupled with prompt recall of any excesses that may arise. Again, the extent to which the issue arises will depend on the extent to which, depending on the legal regime, the collateral provider has recourse to the collateral assets following default.

2.4 Credit Considerations Prior to Collateralizing Risk

Is Collateral a Suitable Credit Risk Mitigation Tool?

We have seen how credit risk arises and how it can be mitigated by a wide variety of strategies. In the case of each counterparty, a specific decision should be made as to whether or not collateralization is a suitable credit risk mitigation tool.

In some circumstances, collateralizing the relationship is not the optimal way of addressing credit issues. To determine whether collateralization is appropriate, the type of counterparty and its financial position should be analyzed. It is important to note that collateral does not turn a bad counterparty into a good counterparty – it does not eliminate credit risk, rather it mitigates that risk.

Proposals for collateral agreements typically originate from either business managers, a firm's credit analysis department or from the counterparty. The impetus for business managers and credit analysts to propose such arrangements may arise from the following scenarios:

- the credit quality of the counterparty constrains the firm's trading desk from executing transactions;
- a counterparty is approaching or has surpassed the approved credit exposure amount so that it becomes desirable to take collateral;
- a firm's credit quality precludes a desired counterparty from executing transactions so the firm may want to offer collateral;
- the counterparty's corporate charter or memorandum of association requires a collateral agreement with all parties;
- the firm's credit appetite for leveraged transactions or longer tenor transactions depends on the existence of a collateral agreement; or
- a collateral agreement may permit a reduction in credit risk capital (regulatory capital, economic capital or both), which is valuable to the firm and may also permit superior deal pricing for the counterparty.

The foregoing list is not exhaustive, but reflects various scenarios that may lead to a collateral arrangement being put in place.

It is considered a very positive practice to document formally for each counterparty the underlying motivation for selecting collateralization as a risk mitigation tool – what is the intended purpose of the collateral arrangement? This is often done as part of the credit due diligence documentation for a new client relationship.

Counterparty Characteristics

When considering a collateral arrangement with a counterparty it will be critical to understand several key characteristics of that counterparty. These will often determine whether a collateral arrangement is a viable or preferred solution, and, if so, what parameters that arrangement should have.

What is the jurisdiction of insolvency of the counterparty?

The jurisdiction of insolvency is not a defined location, but requires judgment of what location(s) the counterparty would go through insolvency proceedings, in the event they were ever instituted. This is important because the choice of legal documentation may depend heavily on the likely venue in which it might be enforced. It is therefore prudent to take appropriate legal advice to ensure that enforcement of the documentation is possible in the relevant jurisdiction.

What is the entity type of the counterparty?

The corporate structure of the counterparty may influence whether a collateral agreement will be effective. Certain types of entity may pose particular problems. For example, insurance companies and public utilities in the United States may be subject to applicable state law and local insurance commission rules; pension plans in many jurisdictions have a protected status in insolvency; partnerships in certain jurisdictions may be subject to look-through provisions that leave the firm facing a multiplicity of individual partners. In addition to this individual counterparty-type analysis, a firm may wish to consider concentration risk within particular industry sectors or geographical regions affecting the counterparty (as to which, see Section 2.8).

Does the counterparty have a public debt rating?

Many collateral agreements utilize a series of ratings-based thresholds and minimum transfer amounts, so it is important to establish what rating the relevant agencies have assigned to the counterparty. If the counterparty is not rated, it may be appropriate to consider other measures on which to base a system of variable thresholds, such as the net asset value or capitalization amount.

Is the counterparty subject to a negative pledge?

A negative pledge is an undertaking (usually in a bond prospectus or a loan facility agreement that the company has entered into) that the company will not encumber its assets by pledging them as security. Such an undertaking would seem to make it impossible to establish a collateral agreement that involves a security interest. The existence of a negative pledge always needs to be checked. However, if one does exist, it is common to find that the negative pledge only prohibits the giving of security for “indebtedness in respect of borrowed money”

– in other words, as collateral for a loan. Since most derivatives contracts are not generally considered to constitute borrowed money,¹⁰ a derivatives collateral agreement is unlikely to be prohibited by such negative pledge language. A title transfer collateral agreement, such as the English Annex should not be prohibited by a negative pledge that restricts the counterparty from granting security interests, unless that negative pledge is drafted more widely than the foregoing example. For a more detailed discussion in relation to negative pledge, see Chapter 4.

Does the counterparty have the necessary operational capabilities to service the collateral agreement?

It is important to assess the counterparty's ability to deliver collateral to the firm on a timely basis, and to receive and securely hold collateral that the firm may deliver to it. To do this, the counterparty will need to be able to measure mark-to-market values and compute collateral requirements on a daily, weekly or monthly basis. Although some collateral agreements appoint one party as the Valuation Agent, it is prudent for the other party to verify the valuations. Establishing these operational capabilities may be important when a collateral arrangement with a less sophisticated counterparty is being considered. In these cases, the firm concerned will often provide information and technical advice to assist the counterparty in establishing appropriate processes and controls.

Business Intentions

In addition to examining the counterparty characteristics above, it is important to consider the past and intended future business relationship with the counterparty.

For established relationships, what are the size, tenor and volatility of the portfolio?

Estimating the volatility and tenor of the portfolio enables the credit officer to select appropriate thresholds, collateral types and minimum transfer amounts.

For new relationships, what types of transaction do you propose to execute?

What size and tenor is being considered? Selecting the appropriate threshold amount is dependent on the product type and tenor of the transactions since most market participants prefer to limit their credit exposure to volatile and / or long-dated transactions.

¹⁰ Some zero-coupon swaps and other types of "funding" transactions may be characterized as borrowed money, although this will depend on the precise terms of the transaction.

What are the intentions of the counterparty and your trading desk for future transactions?

Forecasting future trading volume or product types is difficult and often impossible. There are instances, however, when the customer may be executing a “one-off” transaction or may know that only specific products will be executed that require collateral. Disseminating this information to the credit officer will result in setting appropriate thresholds, and may avoid operationally inefficient collateral agreements as well as the incomplete netting set problem discussed earlier. A level of acceptable exposure to the counterparty should be established, and the potential impact of collateralization on the portfolio analyzed. Many financial institutions run a proprietary financial analysis that results in a “risk rating” used for internal credit rating / monitoring purposes.

Making the Decision to Use Collateralization

Understanding the reasons for considering collateral, the counterparty characteristics that will affect the collateral agreement terms and the type of intended business, the credit area can make an informed decision whether and how to deploy collateralization as a credit risk mitigant.

This may also be the appropriate time to consider alternative credit structures, such as elective termination rights, optional or mandatory cash settlement and other possible mitigation strategies mentioned earlier.

It may also be appropriate to consider the costs and benefits of collateralization, as well as the risks inherent in the process, both of which we will discuss shortly.

2.5 Credit Risk Monitoring for Collateralized Exposures

In Section 2.4 above we focused on credit considerations prior to establishing a collateral agreement. We now move to the credit risk monitoring regime for exposures that are subject to a collateral agreement.

In the 1999 Review, ISDA recommended that:

- Collateralization (like other risk mitigation techniques) should be regarded as a complement to, and not a replacement for, credit analysis. Credit analysis should focus on:
 - traditional measures such as current credit exposure, potential future credit exposure, and probability of default;
 - an estimate of the size and nature of the exposure of the counterparty to the market as a whole, including its liquidity and leverage; and

- the effects of collateral.
- Continuing credit monitoring should be the basis for any extension of credit. Collateralization is one element of an overall credit risk management program and should never be considered an alternative to performing appropriate credit analysis and monitoring.
- Quantitative components of credit analysis for term derivatives products should comprise at least: (a) an assessment of exposure; and (b) an evaluation of any risk mitigation. Daily credit risk assessment should estimate current credit exposure and potential future credit exposure. The absolute size of the exposure is a key measure, but it will usually be appropriate to risk-weight this exposure by the probability of default of each counterparty. Clearly, a US\$100 million exposure to a AAA-rated counterparty is less worrisome than the same exposure to a B-rated counterparty.

Quantitative adjustments for collateral and other credit risk mitigation strategies are important. Current and future measures of credit exposure should be adjusted for any collateral received that is considered to be liquid and legally enforceable. In measuring future exposure, account may be taken not only of the collateral already received but also of pending collateral movements (sometimes referred to as “collateral in transit”). Firms may want to assess the settlement risk of collateral in transit (the possibility of not receiving such collateral) before ascribing value to it. Some firms consider that collateral should not be given full (or any) effect in reducing future credit exposure if it is in transit but has not yet arrived (although full value should be ascribed to collateral that has been delivered to an approved third party custodian which acts on behalf of the collateral receiver).

- Collateral of a type which could not be sold in the applicable size over a short-time horizon should similarly be disregarded, or made subject to a haircut that reflects the longer liquidation period.
- Collateral to which the collateral receiver’s claim is doubtful, or in respect of which there is a material prospect that enforcement of a claim might not succeed, should be treated as giving only partial or no benefit in reducing exposure.

- Stress testing plays a valuable role in the credit risk management process. In performing these quantitative assessments of credit exposure and collateral, ideally both stressed and unstressed scenarios should be evaluated, and a broad range of systems and operational testing should be undertaken, remembering that collateral assets themselves are subject to market stress. Simulating extreme market moves or periods of illiquidity enables better assessment of the level of protection required whether through the application of steeper haircuts on collateral or otherwise.
- If these quantitative assessments of credit risk provide critical information in the credit analysis of a counterparty, other less quantitative assessments are also important. Awareness of a counterparty's exposure to third parties and to the market as a whole is a key consideration, even though the level of information available from the counterparty may be limited. As transparency increases, it may be appropriate to revise the credit and collateral terms of a collateralized relationship. In performing credit analysis, as well as considering the debt rating and capitalization of the counterparty, it is advisable to develop a detailed understanding of the nature of the counterparty's business and its exposure to market volatility, and the correlation between different market sectors and the impact that this can have on a counterparty's business.

2.6 Benefits of Collateralization

Since 1998, the privately negotiated derivatives market has experienced exponential growth. According to ISDA's annual market survey,¹¹ the notional principal outstanding of interest rate swaps, currency swaps and interest rate options has grown from more than US\$50 trillion at the end of 1998 to more than US\$164 trillion at the end of June 2004.

Current credit exposure (mark-to-market) is typically in the range of 1% to 4% of notional principal amounts. Therefore, as the derivatives market has grown, market participants have used collateralization and other risk mitigation strategies more extensively. Mitigating the inherent credit exposure in derivatives transactions allows the continued expansion of the customer base and transaction volumes, while simultaneously remaining within credit and exposure limits, maintaining liquidity and respecting balance sheet constraints.

Collateralization has become a risk-reduction method of choice for several reasons:

Collateralization equalizes the disparity in creditworthiness between parties

Many market participants – dealers, investors and end-users alike – assign a credit tolerance to each counterparty which is dependent on creditworthiness. By collateralizing current credit exposure, some parties which are unrated or have

¹¹ For more information, please see <http://www.isda.org>.

lower credit ratings are able to gain access to the privately negotiated derivatives market. Other parties which have strong ratings are able to maintain and expand their market access. Banks, in particular, are able to use collateralization to expand their customer base by collateralizing transactions with firms outside their normally accepted credit parameters. As a result of increasing transaction volumes and customer bases without taking material additional uncollateralized credit risk, many firms have increased revenues and profitability.

Collateralized transactions may have reduced capital requirements

Banks and other market participants generally hold a capital reserve to protect themselves against losses incurred. There are two types of capital reserve that may be required:

- **Economic capital:** This reserve of capital is determined by management of a firm in its prudential judgment, and acts as a buffer against credit losses. Using economic capital to withstand the effects of a credit loss is effectively a form of self-insurance.
- **Regulatory capital:** Banks and other regulated entities will likely have minimum capital requirements defined by the applicable supervisory body. For example, banks which are subject to a local supervisory implementation of the Basel Capital Accord on credit risk capital are required to hold a certain minimum level of regulatory capital against different transaction types.

Both of these classes of capital – economic and regulatory – are designed to provide some insulation against the impact of credit losses. If collateralization reduces credit risk and credit losses, then it makes sense that capital reserves can be reduced also. Economic capital reductions are a matter for the management of individual firms, but under regulatory capital regimes, such as the Basel Capital Accord, there are defined reductions for collateralized transaction (for example, currently under the Basel Capital Accord, depending upon the type of collateral used, a collateralized transaction may qualify for a 0% risk weighting).

All reductions in credit risk capital reserves (economic or regulatory) make additional capital available for other general corporate purposes, such as investment into other business activities. Over the past five years this capital advantage has become widely recognized as one of the chief benefits of a collateralization program, and significant financial benefits have been realized by several firms as a result of active pursuit of this benefit.

Collateralization may reduce the credit spread that is charged to a counterparty

Not all firms make an overt charge for credit within the pricing of derivatives transactions, but the practice is becoming more common. Credit charges generally reflect the degree of risk involved in executing a transaction with a

particular counterparty. This risk translates into an economic capital reserve requirement, as noted above. Therefore if collateralization reduces risk, and this in turn reduces capital reserve requirements, then it follows that credit charges can likewise be reduced. Thus, superior pricing for transactions can be offered while still achieving an appropriate risk premium and economic capital reserve.

The customer benefits by receiving a better price and the dealer benefits by improving its competitive position. As derivatives have become more commoditized over the past decade, with ever-narrowing profit margins, the positive impact of collateral on pricing has become an important driver behind the growth of collateralization activity.

Finally, it is important to emphasize the obvious benefit of collateralization – that it has proven to be an effective way of reducing credit losses in practice. While much attention is focused on the theoretical consideration of credit risk metrics and the impact of collateral, there have been many practical examples over the past decade where derivatives collateral agreements have reduced or eliminated credit default losses that have occurred.

2.7 Costs of Collateralization

While there are many benefits to collateralization, there are also costs inherent in a collateral program:

Professional fees

There are initial and ongoing legal expenses (both for internal and external counsel) associated with the negotiation process and the development and maintenance of necessary documentation. To the extent that a firm needs legal opinions on collateral enforceability for regulatory or internal risk management purposes, there is a cost associated with obtaining these. One must also consider the expense associated with receiving input from credit, business operations and systems personnel which is often a “hidden” expense embedded into internal cost allocations, but nevertheless part of the overall economic proposition of collateralization.

Operational costs

The start-up costs of a collateral program are likely to consist of a collateral management system (whether built internally, bought or leased), staffing for operations functions and systems support. Long-term costs may include system maintenance and enhancements and increased staffing needs. Several of the larger firms now have in excess of 100 staff dedicated to collateral management. Coupled with associated technology costs, this represents a significant annual cost, which needs to be justified in the context of the business benefits it

produces.

Custody fees and financing costs

The fees associated with safekeeping and settlement of collateral assets may be considerable. This is especially true for assets that must be held in local market depositories rather than any of the central securities depositories such as the Federal Reserve System, Depository Trust Company, Euroclear or Clearstream. In addition, the financing costs incurred in pledging collateral should also be included in the overall cost analysis.

2.8 Risks of Collateralization

Despite the clear benefits of collateralization, there are a number of residual risks that arise from the process. It is helpful to view collateralization as a risk transformation technique, in which the beneficial effect on the basic counterparty credit risk of a derivatives transaction is exchanged for some combination of operational and legal risks, credit risk in respect of the issuer of the collateral plus some residual counterparty credit risk. The net outcome is a reduction of the basic counterparty credit risk, in exchange for a diversification into what may be considered to be more manageable risks. These other forms of risk need to be carefully weighed against the benefits and appropriate risk measurement and management strategies put in place by firms.

The main sources of risk for collateralized transactions are:

Operational Risks

Collateral agreement structuring requires special knowledge and skills in order to avoid creating agreements that are operationally burdensome or legally ineffective. Often, firms will establish extensive collateral management policies that outline the permitted parameters for collateral agreements. The most effective policies are combined with template agreements and robust controls against diversions from the standard templates.

Collateral monitoring, if not performed daily (and even intra-daily for some products such as FX margin trading), with accurate data and reporting, may give rise to a risk that collateral balances may be insufficient, margin calls may be missed and losses may result.

Data quality needs to be extremely high and reliable for the collateral management process to be effective. In fact, collateral management may represent the highest data demands upon the organization, because the trade records and mark-to-market valuations are being used every day, with real external counterparties, to drive actual payments or deliveries to and by the firm. Other users of this data, such as credit reporting, risk management, trading management and operations, are generally not

using the information in such critical situations. Any material omission of trades, late or incorrect booking of trades, trade description inaccuracies or valuation errors will be visible to clients and may result in an incorrect margin call.

Settlement and custody of collateral assets needs to be tightly controlled, both on a day-to-day basis and also during the custody account set-up process. Settlement fails of incoming collateral need to be detected as soon as possible, and escalated for remediation. Outgoing fails, if consistent and repeated, damage the reputation of the firm. Custody accounts must be of the correct type and labeled correctly to indicate the holder, owner and nature of the assets, as appropriate. If assets are pledged under a security interest form of collateral agreement, the account record should show clearly that the assets are held as collateral and owned by the collateral provider. If the assets are transferred under a title transfer form of collateral agreement, the account record must reflect the fact that the assets are owned by the collateral receiver – title has legally transferred at the point of delivery – to avoid any risk of recharacterization as pledged assets. The security interest and title transfer forms of collateral arrangement are more fully discussed in Chapter 4.

Market risk on the collateral assets should be accounted for in the haircuts applied to those assets. Nevertheless, if the actual price volatility of the asset is not back-tested from time to time versus the haircuts applied, there is the potential for loss situations to arise. A regular review of market risk and asset haircuts is the prudent minimum, and for more volatile or less liquid assets a more frequent review is advised. Haircuts are discussed further in Chapter 6.

Concentration risk arises where a collateral receiver has independently received the same or similar collateral assets from a number of counterparties or consistently received the same or similar assets from the same counterparty. It is possible for the aggregate pool of collateral to be unduly concentrated in particular issuers, sectors or countries. There may be nothing that can be done to retroactively reduce such concentrations, but they can certainly be monitored and reported. It is also possible to use this information to guide future collateral agreement structures to avoid such concentrations. See Section 6.1 for a more detailed discussion of concentration risk in relation to the selection of collateral assets.

Correlation risk refers to the situation where a collateral provider has delivered an asset which is highly adversely correlated to itself. Correlation may be reduced or eliminated by careful choice of collateral assets. See Section 6.1 for a more detailed discussion and examples of correlation risk in relation to the selection of collateral assets.

Legal Risks

There are a number of legal risks of collateralization that need to be analyzed in the context of the counterparty type, the likely jurisdiction of insolvency proceedings and other situation-specific factors. A general treatment of how to manage these

legal issues is covered in Chapter 4. Here we will simply note the general types of legal risk:

- failure to understand and follow statutory procedures, such as making timely filings; failure to take all necessary steps to achieve perfection of a security interest;
- the risk that other creditors have a superior priority in insolvency proceedings and attendant subjugation of rights to collateral assets;
- the risk of recharacterization of a title transfer collateral document as an improperly documented and / or improperly perfected pledge; and
- other potential risks arising during enforcement action through the legal system.

Establishing a collateral program that mitigates credit risk while minimizing legal and operational risks is the objective of most firms. The key to a successful collateral program is to implement policy and procedures using an interdisciplinary approach. Collateral programs are a team effort, and require communication and coordination across several functions such as marketing, legal, credit, operations and systems. Coordinating such an effort at a global level poses many challenges and tests the corporate culture of a firm.

CHAPTER 3 – THE COLLATERAL MANAGEMENT FUNCTION

The collateral management function differs widely across different parts of the derivatives market. At one end of the spectrum are a handful of larger banks where specialized collateral management units have been developed, usually with global reach and a staff numbering several tens, or even as many as 100 people. At the other end of the spectrum are small investor and corporate treasuries where the collateral function is a small adjunct to somebody’s “real” job. In between are the majority of dealers, investors and end-users, who have a small group of collateral managers in place, perhaps combined with some other function such as credit monitoring.

One of the perennial questions about the collateral management function is where should it reside organizationally? In this chapter we will address this question, even though we may not approach a definitive answer that suits every firm.

We will also describe the activities that typically are found with a collateral management function. At the same time, we note that this remains an evolving function even after a decade of intense business development, growing volumes and increasing sophistication.

3.1 Principal Roles of the Collateral Management Function

The principal roles of the collateral management function are listed below. It should be noted that some firms will not house all of these roles in a single organizational unit, but in general most collateral units will be responsible for many of these core activities:

Set-up of new collateral arrangements

One of the principal roles of the collateral management function is the operational set-up of new collateral support documentation. The ISDA Master Agreement combined with one of the CSDs has been the primary means used to collateralize trading exposure in the privately negotiated derivatives market. The collateral management function ensures that relevant sections of the CSDs are aligned with the capacity of the firm. It is essential that agreed terms and procedures in the document match the procedures and capacity of the firm. For example, a firm may not agree to accept mortgage-backed securities as eligible collateral if the firm: (a) does not have the capacity to assess the credit risk of mortgage-backed securities; (b) cannot obtain accurate pricing to evaluate their value on a regular basis; or (c) has constraints in settling the bonds or processing the coupon payments.

As a practical matter, if the parties to a collateralized transaction agree on an *ad hoc* basis to practices that differ from the terms of their executed written documentation, it would be prudent that the parties promptly amend written documentation to reflect a changing relationship or evolving market practices.

Identifying these circumstances and driving the amendment process are often roles of the collateral management function.

Maintenance of active collateralized relationships

For counterparty relationships where an executed CSD is in place, the collateral management function is responsible for monitoring collateral adequacy and managing the margin call process (see Chapter 5).

Collateral management functions will often include staff who specialize in the structuring and set-up of new collateral agreements, but in most units the daily margin maintenance process is the central activity within the function. It is very important that a number of prerequisites are fulfilled to enable accurate maintenance of collateralized relationships such as:

- accurate updating of collateral agreements terms in a firm's systems;
- verifying reliable data feeds of the correct deal population for each counterparty;
- independently verifying mark-to-market calculations of outstanding trades to determine correct exposure figures;
- timely and accurate collateral booking in relevant systems;
- timely calculation of collateral adequacy and determination of necessary margin calls;
- efficient execution of margin calls;
- effective monitoring of the settlement process and collateral delivered / received;
- accurate valuation of collateral assets;
- timely reflection of collateral versus exposure figures and the limit utilization in relevant systems;
- provision of all required internal, client and regulatory reporting;
- flexibility to respond to emerging operational or credit problems;
- design and management of robust control mechanisms;
- funding and optimization of long and short collateral positions;

- timely escalation in a crisis;
- effective crisis management;
- coordination and maintenance of collateral policy and procedure documentation;
- education (internal and external) and marketing support; and
- opening of new custody accounts and any required account – opening formalities (for example, know your client, Patriot Act Customer Identification Process, etc.).

Since the 1998 Guidelines were written, important evolutions in collateral management practice have occurred. Much greater emphasis has been placed on operational efficiency and cost control, which is not surprising as collateral management has moved from a small-scale niche activity into a large-scale, industrial strength core risk management activity for firms. At the same time as efficiency and costs have been under scrutiny, collateral practitioners have had to find ways to address more unusual collateral structures and special client service requests in a flexible and creative manner.

The timing of margin calls has generally moved to earlier during the business day over the past three to five years. Whereas there used to be some tolerance for late margin calls received after the deadline (typically 1:00 pm in the location of the counterparty), this has been largely eliminated from the collateral market. Margin calls between dealers and investor counterparties are now often made before 10:00 am in the location of the counterparty, and often before 9:00 am. This accelerated timing has aligned market practice in this area with margin call timings in the US dollar securities sale and repurchase (“repo”) market. This tightening of margin call timing has, in some cases, been a reflection of more rigorous deadlines being written into collateral agreements. However, in many cases it is voluntary, to improve risk management and client service. With other counterparty types, the later deadlines are still commonly used. Note though that in Asia-Pacific, the norm for margin calls tends to be 12 noon or 1:00 pm due to time zone and systems issues. Asia-Pacific is not as homogenous a market as the United States.

3.2 Relationships between Collateral Management and other Areas of the Firm

To successfully execute the collateral management function requires diverse capabilities – operational, risk management, marketing, custody, settlement, legal, documentation, and client service skills, to name but a few. In most firms these will not all be found within any single organizational area. Therefore collateral management functions work most efficiently when there is open and frequent communication with all of the other partner areas within a firm.

Figure 5 lists some typical areas that will be part of or interface with collateral management, and the nature of those interactions. Each firm may contain one or more of the following areas in separate functions, or may have one function to cover all areas.

Figure 5 – Organizational Interaction Matrix for the Collateral Management Function

| <i>Area</i> | <i>Nature of Interaction</i> |
|--|---|
| Sales / Marketing | <ul style="list-style-type: none"> • Introduction of new collateralized clients • Discussion around optimal collateral structures to use • Client education and marketing support activities • Risk identification and management (in some organizations) • Client relationship management • Crisis management |
| Treasury or Financing | <ul style="list-style-type: none"> • Funding of outgoing collateral requirements • Investment of incoming excess collateral balances • Optimization of incoming and outgoing collateral flows • Pricing of collateral assets • Management / allocation of the carry cost of collateral assets • Liquidation of collateral assets in a close-out situation |
| Legal or Documentation | <ul style="list-style-type: none"> • Determination of policy for collateral documentation • Management of document templates • Agreement negotiation • Legal risk analysis and research • Pursuit of legal remedies in a crisis • Enforcement of rights through the court system • Defense against counter-claims and attachment attempts |
| Credit Risk Management / Credit Department | <ul style="list-style-type: none"> • Client due diligence • Credit analysis • Evaluation of credit risk mitigation strategies for each client • Determination of credit policy for collateralized exposures • Setting of collateral parameters (for example, thresholds) for each client • Setting limits • Monitoring limits • Credit risk simulations and reporting • Escalation of disputes and unfulfilled margin calls • Crisis management |
| Controlling / Operations | <ul style="list-style-type: none"> • Accurate computation of mark-to-market valuations • Timely dissemination of valuations • Support for queries on valuations |

Because the successful execution of the collateral management function will cross organizational lines, as well as legal entity and geographic boundaries, it is best practice to develop a well defined set of cross-functional policies and procedures. This will enable all participants in the process to work from commonly understood standards and will avoid later problems arising from the application of different collateralization criteria in different parts of the organization. These standards, policies and procedures should be documented and communicated effectively to all areas in the firm that participate in the collateralized relationship.

3.3 Organization of the Collateral Management Function

We have seen how collateral management spans many different parts of an organization. From a collateral-centric view of the world we can see how the collateral management function sits at the center of the organization. In fact, this is the literal reality in a credit crisis involving a collateralized counterparty. Experience has shown through several actual crisis events that credit officers and concerned sales people migrate to the collateral management floor in a crisis. This is because the collateral managers are likely to have the most up-to-date position data, are in communication with the counterparty, have the ability to call for new margin, prevent the return of existing margin, stop settlements and generally exert a high degree of minute-by-minute control in the crisis.

This was an important lesson from the 1997 Asian crisis and subsequent market crises of 1998 following Russia's default on its debts. A centralized collateral management area can become a key provider of information to risk and business managers, and can act as a vital point of control around payments to distressed counterparties. However, while the collateral management function may be at the center of the crisis, during non-crisis times the question continues to be asked: Where does collateral management belong organizationally?

There is no one-size-fits-all answer to this.

Over time, most collateral practitioners have centralized collateral management for an array of products. This is done mainly for reasons of operational efficiency, but is also a key factor in risk management control. ISDA Margin Surveys over the past several years have shown that approximately three-quarters of the firms that responded operate collateral programs that cover the entire range of products that can be documented under an ISDA Master Agreement. This is a very extensive list, covering forward, option and swap products across asset classes including interest rates, currencies, equities, commodities and credit. The remainder of the respondents actually manages collateral on an even broader basis, including in some cases repo, exchange-traded futures and options, secured loans and other products. Generally, it is the operational support of collateral and margin for these products that is consolidated more broadly, but there are some collateral management services offered by a few firms that achieve genuine cross-collateralization across ISDA-covered and some non-ISDA-covered products.

For banks, the trend has clearly been towards centralization of the function across products and business lines. Some have called this “enterprise collateralization”, which will be discussed as an emerging trend in Chapter 7.

In addition to the common trend towards centralization of collateral management, many firms have recognized that the role of the collateral management function goes well beyond the execution of margin calls and settlement of assets. There is clearly a very strong linkage between collateral and credit risk management, and some firms have aligned collateral management and credit, either directly or through cross-functional reporting lines. Some firms are taking the risk management aspects of collateral further, seeking to identify, measure and then actively manage the secondary risks that arise from collateralization. This demonstrates that collateral may mitigate the credit loss impact of counterparty default, but at the expense of creating legal, operational, issuer, concentration, correlation and liquidity risks, among others, as is discussed in more detail in Chapter 2.

Sometimes the collateral management area will be housed in credit and sometimes in operations. There are organizations that have shuttled the function between credit and operations on a regular basis. Sometimes (albeit rarely) collateral management stands alone, reporting into the senior risk management or controlling figures in an organization. The establishment of an independent collateral management group usually does not occur until a firm has moved beyond the separate collateralization of derivatives transactions, and has begun cross-product collateralization which looks at the entire counterparty relationship across a firm.

Increasingly we are seeing a convergence zone between collateral management, credit risk management, dedicated client service functions and prime brokerage operations (which may come in several distinct versions, such as equity prime brokerage, FX prime brokerage and fixed income prime brokerage, within the same firm). There are certainly strong synergies and areas of overlap across these functions. As part of this gradual convergence we are beginning to see firm-wide collateral management functions aligned with client service operations and prime brokerage operations.

The past decade has shown that there is no standard organizational model for collateral management and that all of the alternatives can work. Which is best for an organization will depend on several factors, including technology. In practice, technology can often impose unintended governing limitations on how the function can be organized in practice within a firm. Most collateral practitioners will agree that no matter which organizational structure is adopted, the most important contributors to their success are: (a) management that understands the collateral function and why it is critical to the firm; and (b) adequate resources to execute the function.

3.4 Staffing – Training the Collateral Practitioner

The collateral practitioner should have the following skills-set:

- thorough understanding of the products to be collateralized;
- mechanical and legal understanding of how collateral documentation works;
- knowledge of the credit risk-related aspects of collateralization, such as thresholds and minimum transfer amounts, and how they impact operational processes and risk calculations;
- complete familiarity with the daily margin call process utilization; and
- practical knowledge of how individual eligible collateral types are held and settled.

Training of all collateral practitioners should develop these skill-sets. As collateral functions have grown, we have seen some specialization of staff, and in some cases firms are consolidating these activities into low-cost offshore venues. By contrast, staff performing the more specialized collateral functions, including the initiation of new collateralized business, operation of unusual collateral structures and crisis management, have become much more highly skilled and valued. These professionals are widely recognized within firms as being collateral experts, and are consulted by sales, credit and legal on questions of collateral agreement structuring.

In general across the market, locating skilled collateral management practitioners has proved a challenge for most collateral management areas. While operations and credit experience is helpful, it is also important to have staff involved who understand traditional securities movement issues. Since collateralization requires an interface with traditional custodian and safekeeping functions, staff who understand the protocol and conventions surrounding securities transfers can make a valuable contribution to effective collateral management groups. However, they also need to understand the complexities of the privately negotiated derivatives transactions that are being collateralized. This need for cross-trained personnel has placed considerable strains on the pool of qualified individuals, and these skill-sets trade at a premium in the markets.

CHAPTER 4 – DOCUMENTATION FOR COLLATERAL

The effectiveness of collateralization as a risk mitigation strategy relies absolutely on certain key legal foundations. These are firstly the form of collateral document used; the legal procedures that may need to be followed to create the best possible likelihood that the collateral agreement will be enforceable; and finally the applicable law of the relevant jurisdictions where the collateral agreement is likely to be enforced. In this chapter we examine issues of document selection, the legal issues and risks associated with collateralization, and what techniques can be used to manage these risks.

4.1 Considerations in Selecting Appropriate Documentation

Collateral documentation should permit the firm to record the terms of its collateral arrangement with clarity and certainty. The terms of the documentation should be flexible enough to permit the firm to tailor it to its specific requirements in terms of types of eligible collateral, permitted unsecured risk (if any), valuation, appropriate minimum transfer amount and rounding rules, arrangements for the handling of income on securities collateral, and interest on cash collateral and other operational requirements. Perhaps most importantly, collateral documentation should be clear and certain as to its legal effect and be easy to enforce against the collateral provider in its home jurisdiction, if necessary, and / or against the collateral assets in the jurisdiction in which they are located.

What is the most appropriate form of documentation for a collateral arrangement will depend upon a number of factors, including the nature of the party or parties which may or will provide collateral under the arrangement, the types of transaction collateralized by the arrangement, the operational capabilities of the parties. A good starting point would typically be an industry standard form for the appropriate market sector because it generally reflects a commercial and legal consensus as to what is practicable, effective and acceptable in the relevant market, and for these reasons the use of such a form can help to shorten negotiation times.

For transactions typically documented under an ISDA Master Agreement, it is natural for the parties to choose one of the forms of CSD published by ISDA.¹² With one exception, explained below, the CSD takes the form of an annex or supplement to the ISDA Master Agreement.

Market participants in the cross-border market for forward foreign exchange (“FX”) and currency option transactions have tended either to use an ISDA Master Agreement, together with the ISDA FX and Currency Option Definitions, or one of the following forms co-sponsored by the New York Foreign Exchange Committee and the British Bankers' Association: the International Foreign Exchange Master Agreement (“IFEMA”), the International Currency Options Market (“ICOM”) Master Agreement, or the Foreign

¹² Transactions across all asset classes including interest rate, currency, commodity and energy (physical and financial), credit and equity may be documented under the ISDA Master Agreement.

Exchange and Options Master Agreement (“FEOMA”), or a local variant of one of these forms. In the case of these forms, parties wishing to collateralize their arrangement have had available a form of Margin Supplement, also published by the sponsors, to collateralize their FX and / or currency options trading.

Repo transactions are most often documented using market standard documentation, such as the Master Repurchase Agreement (the “MRA”) in the United States published by The Bond Market Association, Inc. (“TBMA”) or the Global Master Repurchase Agreement (the “GMRA”) outside the United States published jointly by TBMA and the International Securities Markets Association, Inc. Securities lending arrangements are most often documented using market standard documentation such as, in the United States, the TBMA's Master Securities Lending Agreement (the “MSLA”) or, outside the United States, the Global Master Securities Lending Agreement (the “GMSLA”) or the Overseas Securities Lending Agreement (the “OSLA”), both published by the International Securities Lending Association (“ISLA”). In addition, in the Eurozone, domestic repo or securities lending arrangements are sometimes documented using the European Banking Federation's European Master Agreement for Financial Transactions (the “EMA”).

Repo transactions involve an initial transfer of securities against cash, together with the creation of obligations on the parties to transfer back or pay back equivalent securities or cash at maturity of the transaction. By maintaining, during the life of the transaction, the relative “values” of the parties' obligations to transfer back securities or cash by regularly marking to market those obligations and transferring securities or cash sufficient to maintain the relative values, and by including a mechanism allowing those obligations to be set off or netted against each other in the event of a default by either party, the repo transaction is economically a “self-collateralizing” transaction.

Securities lending transactions can similarly be structured so that they are economically “self-collateralizing”. Again, this involves regular valuation of the parties' obligations, adjusting the relative values of the parties' obligations through the transfer or return of collateral and set-off, or netting of obligations in the event of a default.

Generally speaking, the collateral mechanism used in repo and securities lending transactions is similar to the title transfer approach used in the English Annex. As with the English Annex, in the event of a default there is a close-out of the outstanding transactions, and the obligations of the two parties are valued and netted out to give a single net amount owed by one party to the other. There are exceptions to this rule, such as the MSLA, which uses a security interest approach with respect to the collateral, under which the remedies of the collateral receiver include the right to sell or apply the collateral.

In addition to the documents above, which are mostly for cross-border trading (apart from the European Master Agreement, which originated as a document to replace domestic documentation in the countries participating in the euro, and the OSLA, which originated as a document for use by English counterparties), a number of countries have one or more

local standard forms of master agreement for various types of financial transactions. Where this is the case, for example in France and Germany where standard forms are published by the national banking associations, there is often an accompanying standard form of collateral document.

Although in these guidelines we focus on the CSDs, much of what is discussed concerning documentation practice and the management of legal risk applies also to collateral arrangements entered into in connection with these other forms of master agreement, whether for cross-border or domestic use.

Entering into an appropriate collateral agreement with a counterparty may not always be sufficient to ensure that a firm can enforce the collateral arrangement against the counterparty or against the collateral assets. The firm will need to take legal advice as to whether there are any additional steps, such as a filing or registration of the arrangement, that needs to be taken in order to enforce the arrangement and to defeat claims to the collateral by a third party, such as a creditor of the counterparty or its liquidator or trustee in bankruptcy.

4.2 Form of Documentation

CSDs

ISDA has, to date, published five standard forms of CSD:

- the New York Annex, reflecting the security interest approach which is discussed in more detail below;
- the English Deed, reflecting the security interest approach;
- the English Annex, reflecting the title transfer approach which is discussed in more detail below;
- the Japanese Annex, which permits parties to elect for one of two legal bases under Japanese law for any particular delivery of collateral under the Japanese Annex, one being a traditional securities pledge (a type of security interest) approach and the other being the “lending collateral” approach (which is comparable to the title transfer approach under the English Annex); and
- the 2001 Supplement, which incorporates the 2001 Provisions and which permits parties to elect for one of two bases for their collateral arrangement (as a whole, rather than in relation to specific deliveries, except for deliveries of Japanese collateral, as noted below), one reflecting the security interest approach under New York law and the other reflecting the title transfer approach under English law, with, in either case, optional additional provisions under Japanese law if Japanese collateral will also be taken.

Each of these forms is drafted as an annex or supplement to the ISDA Master Agreement except for the English Deed, which is a stand alone document. The English Deed is a standalone document for purely technical reasons and is, in terms of form and content, otherwise very similar to the other CSDs.

The 2001 Supplement is structurally distinct from the other CSDs because it incorporates the 2001 Provisions, and requires the parties to elect whether the 2001 Supplement will create a New York law governed security interest arrangement or an English law governed title transfer arrangement, with the possibility, as noted above, in either case to apply Japanese law to Japanese collateral only. In terms of content, however, including the operational provisions providing for marking exposure and collateral to market on a periodic basis, its effect is similar to the other CSDs. It should be noted, though, that the operational provisions reflect tighter transfer timings and tighter procedures for resolution of disputes than is the case under the other CSDs. Some other significant aspects are that the 2001 Provisions were drafted:

- in a more “plain English” style than is the case for the other CSDs;
- so that a 2001 Supplement may be used with master agreements other than one of the ISDA Master Agreements; and
- so that a 2001 Supplement may be used with more than one master agreement at the same time, to allow cross-margining between those master agreements.

Despite the foregoing advantages, as of the date of the 2005 Guidelines, the 2001 Supplement and the 2001 Provisions are not widely used in the derivatives market. It appears that this is primarily because the other CSDs are still considered by market participants to be largely satisfactory and because the relatively tight transfer timings and procedures for resolution of disputes in the 2001 Provisions are either thought to be difficult to comply with from an operational point of view, in particular for collateral arrangements that span several time zones or reflect what has already been adopted by firms in their negotiated CSDs. The sentiment of the original drafting group was that the 2001 Provisions should set a high standard in this regard and that eventually the internal technology of market participants, as well as the technology of payment and securities settlement systems, will comfortably accommodate these tighter timings and procedures (highlighted as a trend in Chapter 7).

In addition to the CSDs listed above, ISDA has published the ISDA Collateral Asset Definitions (First Edition – June 2003) (the “Collateral Asset Definitions”), which standardize the descriptions of many commonly used collateral assets in various jurisdictions. Use of the Collateral Asset Definitions should reduce the risk of mistake or ambiguity as to which assets are eligible for delivery in satisfaction of a margin call under a collateral arrangement incorporating the Collateral Asset Definitions and to streamline the process of specifying the eligible collateral asset types. Subject to any local law requirement that might require greater specificity (which will be rare), it should

normally be sufficient, for example, in a New York Annex or an English Annex, when specifying “Eligible Collateral” or “Eligible Credit Support” simply to refer to the unique “ISDA Collateral Asset Definition (ICAD)” code for each acceptable collateral asset type.

The Collateral Asset Definitions are structured as a series of tables covering the most commonly used assets in more than twenty jurisdictions. They are designed for incorporation into any form of collateral agreement, including both the CSDs and non-ISDA forms of collateral agreement.

Pledge versus title transfer

There are two principal forms of collateral arrangement used in the privately negotiated derivatives market: one based on creation of a pledge or other security interest in the collateral, the other based on title transfer. The legal form and effect of each approach will vary according to the governing law of the collateral arrangement, the nature and location of the collateral and the nature and location of the parties. The two approaches can be distinguished as follows:

- under a pledge, the collateral provider creates a security interest in favor of the collateral receiver in securities and/or cash. The securities and/or cash are typically delivered either directly to the receiver or to its custodian. The collateral provider generally continues to own the securities and/or cash, subject to the right of the receiver to sell the securities and/or take the cash if the collateral receiver defaults; whereas
- under title transfer, the collateral provider transfers full title in securities and/or cash to the collateral receiver and grants the collateral receiver the right to set off or net, on default of the collateral provider, the collateral receiver's net exposure to the collateral provider under the master agreement against the value of the securities and/or cash. Under this approach, the collateral receiver owns the collateral, without restriction, and the collateral provider, if it performs in full, is only entitled to the return of fungible securities and/or repayment of cash in the same currency.

A pledge may require greater formality in its creation and perfection than title transfer, possibly including (depending on the various factors mentioned above) registration, filing or some other form of notification of the pledge and other specific requirements as to the form and content of the document creating the pledge. The formalities are necessary to “perfect” the pledge, that is, to ensure its formal validity and priority over any third party with a purported claim to the collateral assets. The formalities associated with perfection of a pledge vary in complexity from jurisdiction to jurisdiction. One of the principal advantages of the title transfer mechanism is the absence of such perfection formalities. Recent national and regional collateral law reform initiatives have resulted in a considerable simplification of the traditional requirements for creating, perfecting and

enforcing security interests over financial collateral. For a more detailed discussion of these initiatives, see Section 4.3 below.

The pledge document and/or general law will normally impose certain duties, conditions and restrictions on the collateral receiver as to the manner of holding and, possibly, as to the use of the collateral, recognizing that the collateral receiver has only a partial and limited interest in the collateral. Under the title transfer approach, there are no such duties, conditions or restrictions. The collateral receiver is the outright owner of the collateral, subject only to an obligation to return fungible equivalent securities or repay cash assuming that the collateral provider performs. Under a pledge there are often conditions, restrictions and/or other formalities to comply with on enforcement. For example, it may be necessary to give notice to the collateral provider before enforcing the pledge, or the collateral receiver may be under an obligation to obtain insolvency court approval before selling the securities. It is worthy of note that, in the United States, with respect to certain corporate counterparties and banks, liquidation of collateral and application of proceeds can occur without court approval.

Title transfer may be simpler and more straightforward than obtaining a pledge as a means of taking collateral. The principal potential disadvantages of title transfer are that:

- it may not be enforceable in jurisdictions that do not permit netting or insolvency set-off. There are also a number of jurisdictions that simply do not recognize the concept;
- it may be re-characterized as a form of pledge in certain jurisdictions, negating the advantages that would otherwise apply. There is clearly a significant risk that a title transfer recharacterized as a pledge will, due to a lack of perfection formalities, fail to constitute an effective security interest. In the United States, for example, the title transfer mechanism is widely used in the stock-lending and repurchase markets but is recognized as being subject to a degree of recharacterization risk; and
- title transfer is not a widely used method of collateralization in the United States (although, in New York, there are fewer formalities associated with the pledge approach to taking security and greater flexibility on the sale of pledged assets than in certain other jurisdictions).

Determining the Appropriate Form

There are a number of factors that parties may wish to consider in determining which CSD is most appropriate for a particular collateralized trading relationship. The relative importance of each of these factors will depend on the particular case. These factors include:

- *Governing law*: A firm may wish, for practical reasons, to use a CSD governed by the same law as the related ISDA Master Agreement. It is not, however,

incorrect to have the CSD governed by a different governing law than that governing the ISDA Master Agreement, but this difference in choice of governing law should be confirmed in specific cases by the firm's legal advisers.

- *Nature and location of collateral:* Broadly speaking, all of the CSDs cover the same type of collateral, namely, cash and government securities (and each can be relatively easily expanded to cover other types of securities). The New York Annex, however, is designed for use only with US dollar cash and US-issued securities. There is no currency conversion mechanism in the New York Annex. Also, the New York Annex assumes one-day settlement periods, which is appropriate for US Treasury securities but not necessarily for most European government securities. Those who use the New York Annex more broadly therefore normally adjust for these factors. The Japanese Annex is similarly limited to Japanese Yen cash deposits and securities denominated in Japanese Yen. The English Deed and English Annex are drafted to cover cash and securities in a variety of currencies as well as in settlement systems with different customary settlement times. They are each primarily drafted with cash in any currency and with European government securities in mind. The 2001 Provisions are drafted to cover cash and securities in a variety of currencies as well as in settlement systems with different customary settlement times. They are primarily drafted with cash in any currency and with government securities in mind, with the appropriate settlement periods being applied depending on whether the New York law security interest or English law title transfer approach is chosen.
- *Use of collateral:* It is often important, commercially, for the collateral receiver to have relatively unrestricted use of securities received as collateral until they must be returned to the collateral provider. This unrestricted use includes the ability to sell them to a third party in the market, free and clear of any interest of the collateral provider. Other uses would include lending the securities or selling them under a repo agreement or rehypothecating them (as discussed in Chapter 2). If the collateral receiver needs unrestricted use of the collateral, the collateral receiver should not use the English Deed without amendment, under which the collateral receiver is not permitted to use the collateral. The collateral receiver may instead prefer to use the New York Annex, the English Annex, the Japanese Annex or the New York law or English law approach under a 2001 Supplement, as appropriate.
- *Enforceability of CSDs:* In deciding which form is most appropriate, parties will also need to consider whether the particular CSD chosen would be enforceable in the counterparty's home jurisdiction, in the jurisdiction where collateral assets are located and in any other relevant jurisdiction. See the discussion in Section 4.3 below as to the status of ISDA's collateral opinion project which will assist parties in deciding which form is most appropriate.

- *Tax considerations:* Tax considerations may affect the choice of CSD. As a general matter, tax is more likely to be of concern in relation to the title transfer approach reflected in the English Annex or the English law title transfer approach under the 2001 Provisions (because of the fact that title to the collateral asset has been transferred), although the UK taxation issues have largely been eliminated during the course of bilateral discussions between ISDA and the UK Inland Revenue, summaries of which are available from ISDA. However, tax issues may arise when the English Annex or the English law title transfer approach in the 2001 Provisions is used in other tax jurisdictions. See the User's Guide to the 1995 ISDA Credit Support Documents under English Law for further discussion of these issues in relation to the English Annex (which discussion would also be relevant in relation to a 2001 Supplement electing the English law title transfer approach). In general, parties should consult with their legal advisors regarding any tax considerations.
- *Negative pledges:* If the counterparty has entered into a negative pledge that would prohibit it from granting security, a firm might be able to put in place an English Annex or 2001 Supplement electing English law, in either case based on title transfer, if the negative pledge does not also cover set-off, netting or similar arrangements. The precise wording of the negative pledge should be considered carefully, but some parties in the past have chosen to use the English Annex specifically for this reason.
- *Bankruptcy freezes:* CSDs reflecting the security interest approach may be caught by a bankruptcy stay or freeze (although they are unlikely to be so caught where the security interest is made by a UK or US corporate / bank). The English and Japanese Annexes and the English law approach in the 2001 Provisions, each reflecting the title transfer approach, might, however, not be caught by such a stay or freeze. For example, neither the English Annex nor a 2001 Supplement electing the English law title transfer approach would be caught by the administration freeze under the UK Insolvency Act 1986 in the event of an administration, which is a form of reorganization proceeding in the UK.¹³ In insolvency proceedings for a US corporation or a US bank, CSDs that form part of an ISDA Master Agreement (as an annex or supplement) generally are not subject to an automatic stay or other sort of bankruptcy stay.

The foregoing list is not exhaustive, but reflects various considerations a firm may wish to take into account when deciding which CSD to use with a particular counterparty. Other factors may be as, or in a particular case even more, important in determining the appropriate form of collateral arrangement and the appropriate document to evidence that arrangement.

¹³ This is quite apart from the effect of the UK Financial Collateral Arrangements (No. 2) Regulations 2003, discussed below.

4.3 Legal Issues

Creation and Perfection of Security

How does one ensure the validity of the collateral arrangement chosen against a liquidator, bankruptcy trustee or receiver of one's counterparty and against third parties? Where the security interest approach has been chosen, one should ensure that the security interest has been validly created under its governing law (which in many cases will be the law the parties have chosen to govern the security interest document) and has been validly perfected, if necessary, in (a) each jurisdiction where collateral is located and (b) each jurisdiction where the counterparty is located for purposes of the relevant master agreement.

As to the location of the collateral, this may raise difficult conflict of laws questions, particularly in relation to securities held in book-entry form through a chain of intermediaries. The discussion below in relation to Article 9 of the Financial Collateral Directive addresses this issue in greater detail.

In practice, valid creation of a security interest is not difficult, assuming the counterparty has the necessary legal capacity and authority to grant security. The precise formalities will, of course, depend on the governing law of the security document and on certain other factors as well, including the nature of the relevant collateral. Essentially, though, it involves not much more than the execution of a properly drafted document such as the New York Annex, the English Deed or 2001 Supplement electing the New York law security interest approach. Often, though, there will be additional requirements, sometimes referred to as "perfection" requirements, which must be complied with to ensure the formal validity and / or priority of a security interest as against the interests of third parties. Examples of such requirements would include:

- delivery of possession or "control" of collateral to the collateral receiver or a third party agreeing to act in accordance with the instructions of the third party;
- registration of the security interest or filing of a statutory notice with a relevant government official;
- notification of the security interest to a custodian holding the relevant collateral or to a debtor of a debt that is assigned by way of security (if it constitutes "cash collateral", for example, a deposit at a bank);
- transfer of collateral in the form of book-entry securities to a special "pledged account"; and
- date-stamping by a public official to establish a "date certain" (*data certa*).

Whether or not any of these or any other means of perfection is required in a particular case depends, as noted above, on the nature and location of the collateral and nature and location of the counterparty, and possibly other factors.

As to the nature of the collateral, the perfection requirements applicable to securities will often be different from the perfection requirements applicable to cash collateral. Even in relation to securities, the perfection requirements may vary according to whether the securities are: debt or equity; bearer, registered or dematerialized; physical form or book-entry; and/or held directly from the issuer or through a chain of financial intermediaries (including one or more clearing or settlement systems).

Legal jurisdictions around the world have been slow to respond to the challenges of modern financial practice, and in particular to the development of modern securities custody and settlement practices, involving the immobilization and, increasingly, dematerialization of securities. These modern practices involve the holding of securities in book-entry form in an account with a financial intermediary, which could be a central securities depository or a custodian, and for the bulk of securities transfers to occur between intermediaries (or across the books of a single intermediary) by appropriate debits and credits in the securities accounts of the transferor and the transferee. In the modern financial markets, a party to a securities transfer is relatively rarely in a direct relationship with the issuer of the relevant security, as it would be, for example, if it held a physical bearer certificate or was recorded as the registered owner of that security. Thus, securities are often said to be “indirectly held”, and sometimes the chain of intermediaries between an issuer and the ultimate holder of the securities can be lengthy and complicated.

Despite these market realities, until relatively recently most legal regimes for the holding and transfer of securities continued to be based on rules that were appropriate for deliveries of physical certificates, which has led to some lack of clarity on particular questions when those rules have been applied, either directly or by analogy, to indirectly held immobilized or dematerialized securities. In particular, rules relating to the creation of security interests in securities held with an intermediary have tended to involve cumbersome rules for creation, perfection and/or enforcement of a security interest in securities, and this has led, among other things, to the widespread use of title transfer collateral arrangements. It has also been the impetus for significant law reform initiatives in recent years, some of which have already borne fruit and others which are still underway.

Law reform in this area has tended to concern the following areas:

- clarification of the law applicable to a transfer of securities held with an intermediary;
- clarification of the nature of an interest in securities held with an intermediary;

- protection of securities account holders from the insolvency of an intermediary holding their securities;
- simplification of the rules for creation, perfection, priority and / or enforcement of a security interest in securities collateral, including the elimination of cumbersome perfection requirements such as registrations and filings and of cumbersome enforcement requirements such as the need for a court order or to conduct a public auction;
- protection of mark-to-market deliveries of collateral and substitutions from insolvency law avoidance powers under zero hour, preference, fraudulent conveyance and similar insolvency rules;
- protection of title transfer arrangements from the risk of being recharacterized as a security interest arrangement (which may then result in an arrangement being void, for example, for lack of compliance with a perfection requirement); and
- strengthening of the insolvency set-off and / or close-out netting regime to ensure the effectiveness of title transfer collateral arrangements, which are normally based on the operation of set-off and / or close-out netting.

The foregoing is not an exhaustive list, and not all law reform initiatives in this area have addressed all these issues or only these issues. But in recent years there has been significant national legislation addressing some or all of these issues in, for example, Belgium, France, Japan, Luxembourg and Switzerland, as well as in the various States of the United States via the promulgation of revisions over the past 10 years or so to Articles 8 and 9 of the US Uniform Commercial Code. There are ongoing national law reform initiatives in this area in a number of countries including Canada and the United Kingdom.

In the European Union there has been a number of recent legislative initiatives with some relevance to these issues, but, most notably recently, the Financial Collateral Directive.¹⁴ The Financial Collateral Directive has not yet been fully implemented in all 25 member states of the European Union despite the deadline for implementation having passed at the end of 2003. In those EU member states where the Financial Collateral Directive has been implemented,¹⁵ the legal regime for financial collateral arrangements has been modernized and simplified, with, among other things, the following consequences: registration, notification and other perfection requirements having been disapplied to financial collateral arrangements; cumbersome enforcement formalities having been eliminated; insolvency stays or freezes having been disapplied; and certain time-based

¹⁴ Directive 2002/47/EC of the European Parliament and of the Council of June 6, 2002 on financial collateral arrangements.

¹⁵ On the ISDA website at <http://www.isda.org> there is a tabular summary of the current status of implementation of the Financial Collateral Directive in the member states of European Union as well as in a number of other states outside the EU, such as Norway and Romania, that have either implemented or are currently considering implementing the Financial Collateral Directive. A link to the summary appears on the ISDA website in the description of ISDA's Collateral Law Reform Group, which is a sub-committee of ISDA's Collateral Committee, which is the ISDA committee principally responsible for the 2005 Guidelines.

insolvency avoidance provisions, such as zero hour, preference and fraudulent conveyance rules, having been disapplied to mark-to-market deliveries of collateral and substitutions of collateral.

Article 9 of the Financial Collateral Directive has also introduced a conflict of laws rule to the effect that the law applicable to the legal nature and proprietary effect (including, for example, perfection requirements) of arrangements involving book-entry securities is the law of the place where the account is located in which the holder's intermediary records those securities. This rule (which exists in national legislation in some countries and in limited form in an earlier European Directive)¹⁶ is sometimes called the "PRIMA" (Place of the Relevant InterMediary Approach) principle.

One of the principal issues relating to the implementation of the Financial Collateral Directive has been the scope of implementation. Parties that wish to enjoy the benefits of the new regime will need to ensure that their financial collateral arrangement satisfies the eligibility criteria for the application of the benefits of the Financial Collateral Directive.

Finally, three ongoing law reform initiatives at international level are worth mentioning: the Hague Securities Convention,¹⁷ the UNIDROIT¹⁸ project on harmonized substantive rules regarding securities held with an intermediary and the European Commission's Securities Account Legal Certainty project:

- the Hague Securities Convention addresses the conflict of laws issue discussed above by setting down a uniform approach to the determination of the law applicable to the proprietary aspects of a transfer of book-entry securities. As a practical matter, the primary rule in the Hague Securities Convention would generally have a similar effect to the PRIMA principle, but it sets out a different approach to determining the applicable law;
- the UNIDROIT project addresses the substantive law aspects of financial arrangements, including collateral arrangements, involving securities held with intermediaries; and
- the European Commission's Securities Account Legal Certainty project, part of its more general initiative on securities clearing and settlement,¹⁹ is also intended

¹⁶ Article 9(2) of the Directive 1998/26/EC of the European Parliament and of the Council of May 19, 1998 on settlement finality in payment and securities settlement systems.

¹⁷ The Convention on the law applicable to certain rights in respect of securities held with an intermediary, agreed in principle in December 2002 at the Nineteenth Session of the Hague Conference on Private International Law, but not yet in force. The Hague Conference on Private International Law is an international organization providing a forum for member countries to discuss and agree harmonization and convergence of rules and principles on a variety of private international law matters. It is based at the Hague in the Netherlands.

¹⁸ The International Institute for the Unification of Private International Law (UNIDROIT) is an international organization, similar to the Hague Conference on Private International Law, with a very similar membership, which provides a forum for member countries to discuss and agree harmonization and convergence of rules and principles on a variety of substantive law matters (and not on private international law rules, which are left to the Hague Conference).

¹⁹ The Commission's initiative is set out in the Communication dated April 28, 2004 from the Commission to the Council and the European Parliament entitled "Clearing and Settlement in the European Union – The way forward".

to address the substantive law aspects of financial arrangements involving securities held with intermediaries.

As of the publication date of the 2005 Guidelines, the Hague Securities Convention is not yet in effect, UNIDROIT has not yet adopted a final form of Convention for submission to its members for ratification and the EU Legal Certainty project is just commencing.²⁰

Where a firm has chosen the title transfer approach, it should be sure that the arrangement will be enforced as written and that it will not be recharacterized as a form of pledge.

Status of Collateral Opinion Project

ISDA has requested opinions from local counsel in various jurisdictions (Australia, Austria, Belgium, Bermuda, British Virgin Islands, Canada, Cayman Islands, Denmark, England, Finland, France, Ireland, Italy, Germany, Hong Kong, Indonesia, Japan, Luxembourg, Malaysia, The Netherlands, New Zealand, Norway, The Philippines, Portugal, Scotland, Singapore, South Africa, South Korea, Spain, Switzerland, Sweden, Taiwan, Thailand and the United States (New York)), as to the enforceability of the New York Annex, the English Deed and the English Annex in the case of the insolvency of the collateral provider.²¹ ISDA has also requested an opinion from local counsel in Mexico, which is expected to be published later in 2005. The opinions from local counsel are available, to ISDA member firms only, at <http://www.isda.org>.

The instruction letter to local counsel requested that counsel first advise on creation, perfection and priority of collateral arrangements under local law, then on enforcement against a local counterparty in the event of its insolvency in the local jurisdiction, including related insolvency law issues such as the avoidance powers of a liquidator and the effect of insolvency stays or freezes. The instruction letter then posed a series of questions regarding the local jurisdiction as the jurisdiction of location of collateral. Local counsel were therefore requested to consider various conflict of laws questions, including the enforceability locally of a security interest created under a security document governed by a foreign law and of a title transfer document governed by a foreign law. It should be noted that the instruction letter to local counsel permitted local counsel to make certain assumptions when stating their opinions (for example, as to the counterparty type). As such, the opinions do not cover all possible scenarios in which a firm may be interested.

Regarding the thirty-four opinions completed, a few general conclusions can be drawn. Some formalities are required in all of these countries other than Bermuda to ensure the validity of a security interest over securities or cash, but these formalities are largely straightforward, and therefore should not cause undue concern in practice. Generally

²⁰ More information regarding each of these initiatives is available from the ISDA website, <http://www.isda.org>, as well as the websites of the Hague Conference on Private International Law, <http://www.hcch.net>, and of UNIDROIT, <http://www.unidroit.org>.

²¹ Please note that the opinions do not cover the Japanese Annex. Also, a small number of separate opinions were commissioned by ISDA to cover the 2001 Supplement and 2001 Provisions shortly after they were published. Because of the relatively low usage to date of the 2001 Supplement and 2001 Provisions, ISDA has not requested local counsel to provide updates of these opinions.

speaking, the countries surveyed either do not permit the collateral receiver to deal freely with collateral securities it holds (to sell, lend, repo or otherwise use the securities) or do permit such use but render the collateral provider's residual proprietary interest in the collateral lost and replaced by a right of set-off. Enforcement of a security interest is straightforward in the countries surveyed, but, generally speaking, enforcement may be subject to a freeze or stay upon the insolvency of the collateral provider. Finally, the survey shows that in twenty-eight of the thirty-four countries surveyed, there is no material risk that a title transfer arrangement, such as that contemplated by the English Annex, would be recharacterized as a security interest. There is some risk of recharacterization in Norway, South Africa and in Taiwan, but in general these opinions indicate that the risk is relatively low or the consequences are not always particularly adverse. Even where there is a risk of recharacterization (as in Italy if one falls outside the Italian implementation of the Financial Collateral Directive), the consequences are not always particularly adverse. The opinion in respect of Indonesia does not address the risk of recharacterization.

4.4 Structuring the Documentation

As discussed above, each of the CSDs, other than the English Deed, is an annex or supplement to the ISDA Master Agreement. As noted above, the 2001 Supplement has an even broader potential application since it may be used as a supplement to an ISDA Master Agreement and / or to one or more other master agreements in respect of a single collateralized trading relationship. The English Deed is a stand-alone document for the reasons mentioned above. Otherwise, in overall operational effect, each of the five CSDs is similar.

Each CSD has provisions dealing with the following:

- how collateral calls and collateral returns are to be calculated;
- the mechanics and timing of transfers;
- the method and timing of valuations made by the collateral Valuation Agent;
- substitutions or exchanges of collateral;
- resolution of disputes regarding valuation of collateral or exposure;
- enforcement on default;
- representations and warranties;
- allocation of expenses relating to the collateral arrangement;
- default interest; and

- rehypothecation or re-use.

These provisions are more fully described in User's Guides published by ISDA in relation to each CSD.

Each of the forms of CSD other than the 2001 Supplement includes a final Paragraph (Paragraphs 11 or 13 depending on the CSD), comparable to the Schedule to the ISDA Master Agreement, which the parties must complete in order to give effect to the collateral arrangement. In the case of the 2001 Supplement, the 2001 Supplement itself serves this function, as most of the operative provisions are set out in the 2001 Provisions, which are incorporated by reference.

In this final Paragraph or 2001 Supplement, the parties are required to specify the relevant types of eligible collateral, the relevant thresholds, independent amounts and minimum transfer amounts, the rounding convention, the interest rate for cash collateral and various matters relating to valuation.

There are, of course, various technical legal differences between the different CSDs based on differences in the underlying governing law and the theory on which each document is based (in essence, as noted above, either a security interest or title transfer). For further details on each CSD, see the relevant User's Guide.

4.5 Managing the Documentation and Legal Risk Issues

For the reasons mentioned above, the legal risks associated with collateral arrangements constituted by the CSDs will depend on a number of factors, including the nature and location of the counterparty, as well as the nature and location of the collateral and the form of CSD that the firm intends to use.

A firm is likely to have preferences as to the form of CSD that it typically uses. However, it should also consider whether that form of CSD is appropriate for the particular case, paying attention to the various factors mentioned above. Once the firm has determined the appropriate form of CSD, the nature and location of the counterparty and the nature and location of the collateral, and any other factors relevant to the specific arrangement, parties may wish to consult their internal or external legal advisers as to the relevant legal risks that should be considered in implementing the proposed collateral arrangement.

Many ISDA member institutions will have conducted extensive legal due diligence on a wide variety of counterparty types across a significant number of jurisdictions. As part of their due diligence, these institutions may rely on, or at least have made a close study of, the collateral opinions obtained by ISDA. Other smaller firms will not necessarily have the resources to conduct extensive legal due diligence of their own, but may choose to rely instead (where they are ISDA members), in whole or in part, on the collateral

opinions provided to ISDA. In either case, firms will sometimes need to take specific advice where a particular arrangement falls outside the scope of their existing legal due diligence and / or the relevant ISDA collateral opinion(s) or, at any rate, they have reason to believe the advice needs to be updated.

In some cases, the relevant legal due diligence and / or ISDA collateral opinion will have recommended specific provisions to be included within the scope of the CSD as an amendment or supplement to the standard provisions. Parties will need to consider these carefully to ensure they are included where necessary and otherwise to evaluate their desirability where such specific provisions are not necessary but are nonetheless recommended.

As to the nature of the collateral that the firm intends to use, parties may find it helpful to use the Collateral Asset Definitions, described above, in order to reduce the risk of uncertainty as to the nature of the collateral asset types that are eligible for delivery under the proposed arrangement.

Having had regard to the issues discussed above, it is important to consider the practical perspective in which the legal issues must be considered. Even though there may remain some legal uncertainty, if firms carefully “risk manage” the counterparty relationship, they can significantly reduce the risk that the enforceability of netting rights and credit support arrangements will need to be tested upon a counterparty default or insolvency. Such risk disciplines include sound credit management policies and practices, the daily monitoring and management of exposures and robust documentation. Enhanced internal systems, sophisticated analytics and reporting, expanded counterparty reviews and due diligence, and robust stress testing enable credit professionals to track risk and predict problem situations. As previously discussed, financial institutions limit their exposures from privately negotiated derivatives transactions and secured financing transactions by marking-to-market such transactions and by receiving collateral.

Documentation is, of course, particularly important for risk management. Documentation such as the ISDA Master Agreement and CSDs have enabled firms to customize contractual provisions to meet the specific requirements relating to a particular counterparty and product. Such documents include close-out rights and remedies for events of default. As a component in a broader risk management practice, it is important for firms to evaluate their ability to rely on netting rights and rights to promptly close out upon a counterparty's insolvency or other default, taking into account various insolvency regimes. That said, reliance on netting and credit support rights can never be all encompassing, because counterparty types present varying levels of legal risk depending on the insolvency regime to which they are subject. As a result, experience shows that in many cases, firms, in fact, exercise their rights under documentation and close out transactions long before counterparties reach bankruptcy. Financial institutions often include early warning triggers in documentation that give a non-defaulting financial institution the right to exercise remedies.

The documentation and legal issues associated with collateral arrangements are often more complex and time-consuming than the financial obligations that they are intended to collateralize. Parties should therefore turn to these issues as early as possible in the process of implementing a new collateralized trading relationship to allow time for proper negotiation of any difficult aspects of the documentation and for any specific legal problems or areas of uncertainty to be raised and addressed with local counsel.

4.6 Cross-Product and Cross-Affiliate Collateral Arrangements and Documentation

In the cross-border privately negotiated derivatives markets, most market participants use one of the forms of ISDA Master Agreement to effect cross-product netting of derivatives transactions and therefore typically one of the CSDs to collateralize the resulting net credit exposure. This could be said to represent the “multi-product master” approach to cross-product netting.

Apart from the European Master Agreement, most of the other financial market master agreements (such as IFEMA, the GMRA or the GMSLA) mentioned in Section 4.1 of this Chapter are “single product” masters, that is, they do not contemplate the inclusion of a wide variety of different types of financial product but only a single type or a range of closely related types.

In order to achieve cross-product netting between the net close-out positions under one or more of these master agreements, including, where appropriate, the ISDA Master Agreement and any other master agreements between two market participants, those market participants may choose to use an “umbrella” or “master master” agreement, either a privately drafted form or one of the forms of Cross-Product Master Agreement published by TBMA.

Cross-product master agreements essentially seek to achieve two things. First, they allow cross-default between the underlying master agreements so that a default under one master (say, an ISDA) allows the non-defaulting party to close-out each other master agreement (say, an IFEMA). Second, they provide for the net close-out positions under the individual underlying master agreements to be aggregated to give an overall net position between the parties.

Generally where an underlying master agreement has the benefit of collateral, the cross-product master agreement will allow that collateral to be taken into account in relation to that underlying master agreement and the post-collateral net amount resulting under that underlying master agreement will then be taken into the aggregation effected under the cross-product master agreement.

As the position with respect to the enforceability of cross-product master agreements can vary from jurisdiction to jurisdiction, parties should consult their internal or external legal advisors to establish whether or not such an agreement will be enforceable in the context

of a particular counterparty. Where the parties to the cross-product master agreement are the same two parties as are party to each of the underlying master agreements, in many jurisdictions the cross-product master agreement will be enforceable.

Where the cross-product master agreement seeks to net between more than two parties, for example, where it seeks to net positions between one party and its affiliates and the other party (cross-affiliate netting), the position is often more difficult, and enforceability of such an arrangement may well require the use of additional techniques such as the creation of guarantee obligations or the grant of collateral over the net obligations payable under the underlying master agreements. The additional techniques, however, tend to raise difficulties of their own, for example, in terms of the enforceability of “up stream” and “cross stream” guarantees (in the former case, where a subsidiary guarantees the obligations of a direct or indirect parent company and in the latter case where a company guarantees the obligations of an affiliate that is not its subsidiary) or in terms of the appropriate regulatory capital, tax or accounting treatment for the overall arrangement. Parties should again consult with their internal or external legal advisors if seeking to implement a cross-affiliate netting or collateral arrangement.

CHAPTER 5 – THE MARGIN CALL PROCESS

We have seen how collateral agreements require a sophisticated approach to credit risk evaluation, and that they represent a complex challenge in terms of documentation and legal risk management. Collateral agreements also give rise to a wide range of operational activities, which we will label broadly as the margin call process.

In this chapter we will discuss in some detail the practical aspects of operating a collateral agreement. We start with the administrative set up of the collateral agreement, cover the primary variables in the agreement and how they impact operational practice, and then discuss the actual event of making a margin call and the range of possible outcomes that may result.

5.1 Negotiating and Operationally Establishing the Collateral Agreement

Chapter 4 reviewed the different forms of CSD, but each serves the same basic purpose: to provide the contractual basis to collateralize the exposure of all trades covered by the particular agreement. In addition to creating a contract between the parties and establishing the key legal pillars of the collateral arrangement (for example, the granting of security interest over the collateral assets), the CSDs also define all of the mechanical terms of the margin call process.

The events of the margin call itself will be discussed later, but it is important to note the role of the collateral management function in the negotiation process. The initiation of a collateralized relationship typically begins with the relevant sales person or business manager, and involves the credit and legal areas. It is important that the collateral management function is also an early and active part of the initiation process. Collectively, these areas work together to determine the detailed terms of the CSD.

Many firms have standard templates for collateral agreements, which include acceptable ranges for the key parameters of the agreement. These parameters include: Thresholds, Minimum Transfer Amounts (also known as “MTAs”), Independent Amounts, rounding, haircuts, Eligible Credit Support, valuation and timing of margin calls, dispute resolution rules, calculation of Interest Amounts either payable or receivable on cash collateral, and Valuation Agent designation. Ranges for these parameters have typically been agreed by all of the internal areas of the firm involved in the collateral management process. Although these terms are standardized in the template, all collateral agreements are unique, and thus they can be negotiated with the counterparty and altered if agreed by all involved areas.

Each of these parameters may impact several areas within a firm. In general, the best practice adopted across the market seems to be to assign primary authority over each parameter to the area most affected by changes in that parameter. For example, the Threshold is a primary determinant of the residual after-collateral credit risk the firm will have, so this tends to be set by the credit area. However, the frequency of margin calls

has the most direct impact upon operations, and thus should be driven strongly by the available operational capabilities. Examples of items which may prove difficult to support operationally include very small Minimum Transfer Amounts, manual fixings of interest rates, variable Thresholds and overly complex Independent Amount calculations. Where there is overlapping impact (for example, very infrequent margin calls will create a credit issue), it is normal for any negotiations outside of the template boundaries to have joint approval from all affected areas.

It is also important for the collateral management function to use its unique position to look across all collateral agreements and identify anomalous proposals and to promote consistency. By contrast, most credit officers, sales people and lawyers may only see a subset of the collateral agreements negotiated by a firm. Collateral managers may not have veto power in these cases, but their expertise and information advantage should be employed to look for parameters which fall outside of market standards, such as Thresholds which are inconsistent with similarly situated counterparties, or haircuts which are unduly aggressive or conservative.

Eligible collateral types are another aspect of the CSDs which is negotiated between the parties. While the most commonly used collateral types are cash, government securities and sovereign debt, other collateral types are often considered as part of the negotiation and appropriate haircuts are applied. As discussed in Chapter 4, the Collateral Asset Definitions provide a useful framework for selecting and identifying the assets to be used. Examples of considerations in determining the inclusion or exclusion of eligible collateral types in a CSD are the settlement method for the collateral and the ability to obtain frequent and current prices for the asset. Less liquid securities often have a longer settlement cycle and therefore add a level of risk to the settlement of the collateral. They can also be difficult to price.

During the negotiation process there will be a determination of which products will be included under the CSD. In order to avoid achieve the most effective risk management, as discussed in Chapter 2 (see The Incomplete Netting Set in Section 2.3), best practice is to include all transactions covered under the ISDA Master Agreement under the CSD as well. If certain products or transactions are excluded from the CSD, the net loss may be increased as illustrated in Figure 4.

Most large financial institutions have CSD tracking databases (often the same database in which ISDA Master Agreements are tracked) or systems in which the terms of the collateral agreements are stored for use by the collateral managers, credit and risk officers, as well as front office staff. Before a CSD can be moved to a live operational state, the negotiated terms have to be captured in all of the relevant systems. In most firms this is not a straightforward task, as often data must be entered into multiple systems individually in order to calculate exposure, determine margin actions and compute regulatory capital. There are a number of vendor products used in the marketplace which support the warehousing and interfacing of the collateral agreement terms, but many firms choose to develop this technology in-house as well.

5.2 Reconciliation

Following the negotiation of the collateral agreement but before it is acted upon with margin calls being made, it is recommended that firms perform a detailed trade-by-trade position reconciliation. Reconciliation allows the two parties to agree on the number and exposure of any existing trades.

This is a small but critical step which is often overlooked. To emphasize its importance, it is worth stating that, if the portfolio has not been reconciled and agreed, any collateral that flows back and forth between the parties is based on what may be an estimate of true exposure. From a credit risk management point of view, this is not generally considered a sound basis for collateralization. Portfolio reconciliation is discussed further in Section 7.2 as a current trend in collateral management.

5.3 Making Margin Calls

Once the CSD has been agreed and executed, the relevant parameters loaded into the systems and the portfolio of transactions reconciled between the parties, the margin call process begins. This consists of:

Computing the margin call

The portfolio of transactions and the portfolio of collateral assets are both valued (usually on a mark-to-market basis). The valuations are made as at the close of business on a particular business day, which we designate as day “T”. The collateral value is compared to the transaction exposure and, using the mechanical rules defined in the CSD, the adequacy of collateral is computed. This is usually done on the morning of T+1 for logistical reasons. The result determines the change in the collateral requirement for that day (i.e. the collateral requirement for T+1 calculated as of the close of T).

Communicating the margin call

One party will notify the other of the collateral requirement and formally request the delivery or return of collateral. Some agreements establish one particular party as the Valuation Agent, and others allow either party to make a margin call on the other. The CSD will define a deadline on T+1 for the margin call to be communicated; in the ISDA CSDs, unless modified by the parties, this is 1:00 pm.

Verifying the margin call

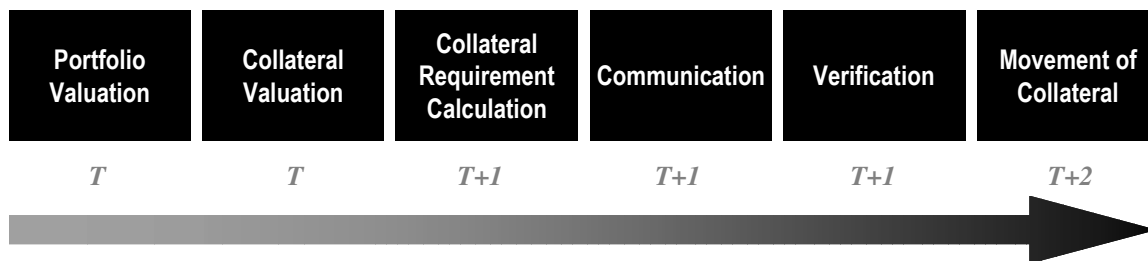
When a party receives a margin call from the other party, it is best practice to review the calculations for error, and also to compare the results to internal system calculation. A response is then given, either agreeing the call and advising the assets to be moved, or disputing all or part of the call.

Movement of collateral

The standard CSD language requires that, if a call is made by the 1:00 pm deadline on T+1, settlement of the call will be initiated on T+2. Other assets may have a several-day settlement cycle, so the collateral will not necessarily finally settle on T+2, even if the movement is initiated that day. It should be noted that in practice, especially in the US, firms receiving and validating a margin call on T+1 will often initiate settlement that same day, rather than waiting until T+2 (as provided for in many collateral agreements).

Figure 6 illustrates the main parts of the margin call process and the typical timing associated with them.

Figure 6 – Summary of the Margin Call Process



5.4 Computing the Collateral Requirement

The computation steps leading up to the communication of the margin call have a number of detailed features that merit a more detailed description:

- *Portfolio Valuation*: The first phase in the preparation of the margin call is to aggregate all trades within the portfolio which are covered by the collateral agreement. Each trade must have a mark-to-market value associated with it which is computed as at the valuation date and time in the collateral agreement. The value of all collateralized trades is then netted together to arrive at a net portfolio trade valuation. Firms may wish to confirm that portfolio trade valuations used in margin calls are consistent with valuations used in their books and records.
- *Collateral Valuation*: The value of any collateral which is either being held or transferred is calculated on a mark-to-market basis. The value of all collateral assets is then netted together to arrive at a “net collateral value before being haircut”.
- *Collateral Requirement*: After the net portfolio valuation has been calculated, the terms of the CSD are then factored into the computation in order to determine the Credit Support Amount, or amount of collateral required to be held by the

exposed party. These terms include Thresholds, initial margin and / or Independent Amounts.

Once the Credit Support Amount has been determined, the next step is to calculate the collateral valuation after haircuts. Using the collateral valuation method described above, a haircut (if applicable) is applied to collateral valuation in order to determine the net collateral valuation after haircut.

The net portfolio valuation is then compared to the net collateral valuation after haircut in order to determine an exposure amount. The Minimum Transfer Amount and any rounding amount are then applied to this exposure amount to determine if a margin call will be made against the counterparty, or if a margin call can be expected to be received.

The last component in the equation is collateral in transit. In the event that a previous margin call was made and a collateral movement agreed but the collateral not yet settled, the pending collateral movement may be factored into the margin call. See the discussion in Chapter 2 for further detail in this regard.

Once the calculation is complete and the determination made that a margin call is required, a margin call notice is delivered. The margin call notice varies from firm to firm, but the standard components of a margin call notice include: the net portfolio valuation (which is typically broken down by product grouping); the net collateral valuation after haircut; any Independent Amounts or initial margin requirements; the Threshold; the Minimum Transfer Amount and rounding; as well as the margin call amount. The margin call notice is then delivered to the counterparty in a variety of methods which include fax, email or secure website. In addition, the margin call notice should include all the standard settlement instructions for each eligible collateral type.

In order for the margin call to be actioned under the timing outlined in the agreement, it must be received by the party upon whom the margin call is being made by the notification time as set out in the CSD.

5.5 After the Margin Call

Confirmation of Margin Call

After the margin call notice has been sent, the counterparty is required to confirm its agreement to the margin call. If there is agreement on the terms of the margin call, the parties will agree the specific collateral types and amounts to be transferred in order to satisfy the margin call, as well as the timing of those movements. Collateral movements are monitored to ensure the successful delivery of assets and, when received, collateral holding records are updated.

If the counterparty disagrees with the margin call, it may dispute the call (see below) and reconciliation will then begin. The portfolio will be reviewed for obvious discrepancies such as the following:

- differences in trade population;
- threshold differences;
- collateral asset differences;
- significant differences in valuations of specific trades; and
- initial margin / Independent Amount differences.

If the parties are still unable to agree upon the valuations of certain trades, the dispute resolution mechanism outlined in the collateral agreement will become effective.

Substitution Process

The CSD may allow for one or both parties to call back previously delivered collateral and to substitute other eligible collateral types, although there may be reasons to require the consent of the other party before the substitution takes effect (for example, to avoid the collateral arrangement being recharacterized as a security interest or floating charge under English law). Generally this right to request substitution can be exercised at the discretion of either party.

The timing of both the request and exchange of substitute collateral are included in the collateral agreement. The following is an example of a typical substitution request:

- the party requesting substitution of collateral will send a notification to the other party asking for the return of a specific asset and amount by the notification time as outlined in the collateral agreement. Communication is typically either by phone, fax or email. If known at the time of the substitution request, the party requesting the substitution will identify the substitute collateral;
- the market value after haircut of the substitute collateral must be either equal to or greater than the market value of the recalled collateral and must also qualify as eligible collateral under the terms of the CSD; and
- any consent that may be required of the party for the substitution should be given or declined in accordance with the collateral agreement.

On the day following the substitution request:

- the party asking to substitute collateral will confirm details of the substitute collateral and then make the delivery;

- the party who accepted the substitute collateral will confirm settlement and then return the original collateral; and
- the value of the replacement collateral is then factored into the margin call statement going forward.

Typically the CSD allows for the release of original collateral on the business day following settlement of the substitute collateral; however it is common for the collateral receiver to release the original collateral on the same day it receives the substitute collateral, upon verification of settlement of the substitute collateral. Both parties need to be clear as to when the original collateral will be released. For example, Asia-Pacific counterparties using a European or United States settlement or clearing system will not be able to verify settlement until at least a day later.

Disputes

If a party disagrees with a margin call, it may dispute that call. The most common reasons for a disputed margin call are legitimate differences due to either trade population or portfolio valuation differences.

It should be noted that the CSDs provide for the concept of an undisputed amount. In the event that one party calls for an amount of collateral but the other party feels that the correct requirement is lower, the undisputed amount will be the lesser of the two. This is required to be delivered promptly and in accordance with the general terms of the CSD.

The most effective prevention against disputed margin calls is the reconciliation process. In addition to the pre-live reconciliation mentioned in Section 5.2 above, regular portfolio reconciliations between the two parties greatly reduces the frequency of collateral disputes and helps to ensure that differences are addressed before they become more significant issues. When a dispute arises, however, firms have varying procedures and internal communication in place to ensure that the appropriate staff within the organization are aware of the dispute.

In general, disputes are reported to the credit risk management area, though at some firms a defined latitude is given to the collateral manager before reporting is required. In some institutions disputes are also reported to internal audit and interested front office and sales staff. Actions taken as a result of a dispute are often determined according to the following criteria:

- the creditworthiness of the counterparty;
- the size of the dispute and length of time;
- the frequency of disputes with the counterparty; and

- credit events or other extenuating circumstances.

In the event of a protracted dispute or large disputed amount, credit and trading management may decide to suspend temporarily or limit further trading activity.

Despite appropriate controls being in place however, disputes may still arise as a result of more complex transactions. These transactions should be identified and procedures should be implemented to validate the mark-to-market valuation on these transactions regularly.

On occasion, despite the use of reconciliations, effective procedures and appropriate internal and external communication, the dispute language specified in the CSD needs to be activated. In this case the CSD should outline the specific steps to be taken and their timing. This may require the Valuation Agent to seek independent market quotations on specific transactions or the portfolio as a whole. In extreme cases, transactions may be closed out or other action taken.

5.6 Timing of Margin Calls

The general timing requirements and deadlines for margin calls have been discussed previously. Although standards are defined in the CSDs, in many cases counterparties have negotiated tighter timeframes for margin calls and collateral deliveries. They may also have eliminated assets with extended settlement cycles from the list of eligible assets. These changes are all designed to reduce risk, by shortening as much as possible the time between an exposure arising and the receipt of covering collateral, or the initiation of appropriate close out action in the event of a default.

For example, in the US market, especially between banks and hedge fund clients, it is common to find that margin calls made on T+1, as of the close of T, are fully settled on T+1. In Europe this trend is less widespread, although there are examples of it.

It should be noted that in Asia-Pacific, the timing conventions can be different. This is a result of both the geographical distance between counterparty locations and also the extended settlement cycles that some of the more commonly used Asia-Pacific collateral assets have. Similarly, extreme time zone differences are successfully managed with standard timeframes, for example between counterparties located in Australia, Europe or the United States.

For collateral practitioners, the resulting challenge is, of course, the need for timely data feeds, reliable and accurate data, faster turnaround times in other parts of the process such as settlements, and the ever-increasing need to compress more margin calls into shorter timeframes.

5.7 External and Internal Client Reporting

There are a number of reports generated as a result of the margin call process and collateralization overall. Some of these reports are exchanged with parties to the collateral agreement and others are distributed to outside regulators or other interested parties within an organization. A detailed discussion of the types of reporting that may be required by the collateral management function will be found in Annex 2.

5.8 Cross-Product Arrangements

CSDs which cover multiple products can take on various forms. Within privately negotiated derivatives and FX product lines, these arrangements are common and are easily supported under a single agreement within the marketplace.

Cross-product arrangements from a collateral perspective require the collateral management department to perform several tasks, institute controls and address several issues.

For example, technology is required to pull in transaction portfolios and valuations from numerous source systems. These systems may have varying levels of detail, different file layouts and produce data at different times of the day. In order to manage these discrepancies effectively, the collateral management system and staff must be able to “normalize” the data, verify its authenticity and aggregate it into a single, consolidated format.

When products are traded in the same legal entity, challenges still exist. Operationally, the issue of being able to book trades in multiple products to a single entity often requires “back-to-back trades” to be booked internally between two legal entities, requiring reconciliation between client-facing and internal trades. The firm’s legal advisers may need to consider any issues that may arise resulting from such back-to-back booking processes. The firm will also have to consider how to allocate the risk, how disputes arise and who is to contact the counterparty.

5.9 Default

While rare, defaults do occur. This may be due to a failure to deliver collateral or because of any of the other events of default set out under the ISDA Master Agreement.

In these cases, preparation coupled with appropriately swift action is essential. Each firm should define in advance what its policies and procedures will be in the event of default.

In the event that a counterparty fails to deliver collateral as required, or to make any other valid response, such as initiating a dispute process under the CSD, it will normally be appropriate to work through three levels of escalation:

- *Informal Inquiry:* Contact the counterparty and ask for an explanation of the non-delivery. It may be the result of an operational failure and, while technically a default, this may mitigate subsequent escalation steps.
- *Notice of a Potential Event of Default under the ISDA Master Agreement:* If the default appears to be a genuine credit event (as opposed to an operational problem), this step and subsequent actions should be referred to the legal department. The ISDA Master Agreement generally permits a cure period, which is the short time in which a counterparty is able to remediate the default condition without triggering a full termination process. Notice must be given that a potential event of default has occurred in order to start the clock on the cure period.
- *Notice of an Event of Default under the ISDA Master Agreement:* This is the next step of escalation in response to an uncured event of default. This process should be handled by the legal advisors, with input from the collateral management function as necessary.

While the foregoing may be appropriate in most circumstances, it will always be necessary to maintain communication both within the firm (i.e. between different functions) and with the counterparty.

CHAPTER 6 – MANAGING COLLATERAL ASSETS

A key component of the collateral management process is the ability to manage collateral assets exchanged under a CSD.

In this chapter we discuss the various facets of managing collateral assets, ranging from documenting the eligible assets allowable under the terms of the margin agreement to safekeeping and custody of those assets.

6.1 Selection of Collateral Assets

It is critical to the effectiveness of a collateral agreement that appropriate assets are selected as eligible collateral in the case of each individual counterparty relationship. Certain collateral types may present inherent risks related to the price volatility, liquidity or settlement of the asset.

In addition, it is appropriate to consider the eligible collateral assets in the context of the party that will be providing them. Some counterparties may have a natural supply of certain assets as a result of their normal business activities. For example, a New York dealer in municipal securities may have ready, low-cost access to offer these assets as collateral; a South African mining company may prefer to deliver gold depository receipts as collateral. The corollary is also true, that some counterparties may find it very hard or expensive to source certain asset types. For example, requiring that an Indonesian tractor manufacturer deliver only US treasuries as collateral may create additional costs and risks.

Collateral assets should also be selected with consideration for the possible need to enforce legal rights against the assets. Some asset types are traded only via specific exchanges, which may impede the timely liquidation of the asset. Other assets may need to be held in a particular geographical location (for example, a local market depository) where the applicable law or procedures required to perfect a security interest are burdensome or may create delays in later enforcement action against the collateral.

With this range of potential issues for consideration it is not surprising that many firms have established a limited range of eligible collateral assets as standard policy – “*cash and government securities of major industrialized jurisdictions only*” – representing a more conservative position. On the other hand, some firms have found that, by making careful collateral asset selections that take into account the various relevant factors, they are able to accept a much wider range of assets and thus provide a more flexible response to clients.

To assist practitioners in this analysis, the following list of considerations may be helpful:

- **Volatility**

When a firm needs to liquidate or sell collateral, will the price realized for the asset be similar to the price used earlier to assess the value of the asset?

Price volatility exists for all non-cash collateral assets, but collateral practitioners will generally prefer assets with lower volatility because this provides greater certainty that the sale price will be similar to the pre-default valuation. It is also important to understand the potential price volatility in distressed markets. For example, looking at the price volatility of a particular bond over the previous 12 months may give a result of 4%; however, if measured over short periods of market stress in the past, the price volatility for the same instrument may be 20%.

The primary defense against price volatility is the use of haircuts, which are discussed later in Section 6.2. There are other factors that need to be taken into account when setting haircuts, but at the most fundamental level they are driven by price volatility. For example, if a firm takes a bond with 4% historical price volatility, they might conclude that ascribing that asset a collateral value of 96% of its current market value would provide sufficient protection. In reality, a more sophisticated analysis is needed, which will be covered later.

It may be appropriate to take assets of higher volatility if the collateral receiver has special insight into the relevant market in which the asset would be sold (for example, if it is a dealer in that market) or if the haircut applied to the asset is suitably conservative.

- **Liquidity**

If it becomes necessary to sell a collateral asset, will it be sufficiently liquid so that the sale can be accomplished in a reasonable period and at a reasonable price?

It may be true that any asset will eventually find a buyer at some price level. However, for collateral agreements this is unsatisfactory. It is critical to be able to sell a collateral asset quickly and at a robust price that is close to the pre-sale valuation of the asset. In an ideal world, all collateral assets would be sold on demand into a deep, liquid marketplace with transparent two-way pricing.

Generally, collateral agreements in the privately negotiated derivatives markets approach this ideal quite closely because the collateral assets are carefully selected. Firms use different methods of assessing liquidity, but one approach is to periodically compare the amount of an asset held against the total amount in circulation, or the average daily volume in the market in which that asset would be liquidated. For example, a firm holding US\$25m collateral in the form of one million shares of Microsoft equity (NASDAQ: MSFT) as collateral might draw some comfort from the 10.88 billion shares outstanding or the average daily

volume of 73.04 million shares traded.²² By contrast, a firm holding US\$25mm collateral in the form of Slovenian Restitution Fund bonds may find that, during a liquidation, the bonds represent most of the market volume and the firm must either spread sales over a period of time or accept a significantly impaired sale price.

In practice, a liquidation period of a few days may be acceptable. However, this is a risk decision that needs to be made consciously, and should be factored into the relevant haircut calculation by allowing for an extended liquidation period over which price volatility should be measured.

Additionally, consideration should be given to whether the firm wishes to rehypothecate the collateral asset. If the collateral asset is illiquid, it may be difficult to re-source the asset for return under the collateral arrangement.

- **Credit Quality**

Does the issuer of the collateral asset have a sufficiently strong credit rating?

It should be remembered that, in a collateral arrangement, the collateral asset provides secondary recourse. The counterparty to the transactions that are being collateralized represents the primary risk. It is nevertheless recommended to set parameters around the acceptable range of credit quality of the collateral asset issuer. If a firm wishes to address this issue, the collateral agreement should also provide that, if an issuer is rated below an acceptable level, substitute collateral should be delivered. The collateral agreement should take into account the fact that different rating agencies sometimes rate the same security differently; firms may want to consider how this affects the eligibility of that asset.

One interesting way of looking at the primary risk / secondary risk nature of collateral agreements is to consider compound default probabilities, sometimes called the “Two Name Paper” analysis. This approach is based on the idea that, in a collateralized scenario, a firm will only lose money if the counterparty defaults and, simultaneously, the collateral asset is also impaired (for example, if the collateral asset issuer were also in default). If we can ascribe default probabilities for a given time horizon (say one year) to both the counterparty and asset issuer, we can compute the compounded probability of both events occurring in the timeframe.

- **Custody and Settlement Efficiency**

Are the collateral assets easy and cost-effective to hold and settle?

It will be necessary to settle collateral assets and to hold them in some form. Some assets offer significant advantages in these respects, and thus contribute less

²² MSFT data correct as at February 16, 2005. Source: Media General Financial Services.

operational risk to the collateral management process. Assets that are held in book-entry form and settled through central securities depositories²³ are generally superior choices. By contrast, assets that can only be held or settled through local depositories can be extremely expensive. Although this may be warranted in exceptional cases, failure to manage these costs can have a rapidly escalating impact as a collateral management function expands in volume.

It is also generally inadvisable to use collateral that is held in physical form, such as physical stock or bond certificates, bulk commodities and similar assets, although again there may be exceptions.

Assets with short settlement cycles (same day, T+1 or T+2) are generally preferred from an operational convenience perspective, because this allows a shorter close out of margin calls. Longer settlement cycles mean margin calls are open for several days until settlement. This can mean multiple collateral movements are all in process simultaneously, which presents increased operational risk.

- **Pricing Ease and Transparency**

Is it easy to obtain accurate and timely prices for collateral assets? Are the sources for those prices market-based and transparent?

Any asset received by a firm should have an easily attainable public pricing source. An important aspect of managing collateral assets is the ability to determine the market value of the collateral in an accurate and timely manner on a daily basis. A common way to achieve this is through the use of standardized pricing sources such as vendor pricing services. Most larger financial institutions have front- or back-end systems that take direct pricing feeds in from these services throughout the day. In most firms, an end-of-day snapshot of these prices is taken; in general, the market has not yet moved in the direction of intra-day pricing and margin calls, with the exception of some FX margin trading relationships.

Careful attention should be paid to the source of prices, meaning not just the price publisher or vendor, but the ultimate contributors of price data that feed into the published price. It is recommended that firms use multiple price contributors. Firms should ensure that price contributors are reliable and that price data is not stale.

²³ For example, Euroclear, Clearstream, GSCC and several other central securities depositories. For a further discussion in relation to assets that are held in book-entry form and settled through central securities depositories, see Section 4.3.

- **Collateral Asset Correlation**

Is your collateral adversely correlated to your risk?

Collateral assets will always be correlated to some degree with a number of other factors that contribute to the risk of the underlying transactions being collateralized. One example would be where the credit of the collateral asset issuer is correlated with that of the transaction counterparty (for example, where the entities are related). However, more subtle adverse correlations can arise through industry correlations (for example, a software company that delivers the equity stock of a computer hardware company as collateral; these could be adversely correlated in response to some event impacting the technology sector generally).

Adverse correlation may also exist between the collateral asset and the derivatives transaction being collateralized. For example, if mortgage-backed securities are provided as collateral against a portfolio containing total return swaps on mortgage-backed securities, the exposure could increase simultaneously with a correlated decrease in collateral value.

These are all examples of “wrong way” collateral, meaning collateral the value of which moves in the wrong direction as the value of the transaction exposure increases. There is also a concept of “right way” collateral, where the collateral is beneficially correlated with the underlying trade exposure and increases in value as the transaction increases in value to the firm; this effectively creates a covered trade. For instance, in the case of equities securing exposure arising from a call option bought on those same equities, the market risk approaches zero (especially once the option is deep in-the-money) because any increase in the exposure is balanced by a corresponding rise in the market value of the collateral.

- **Collateral Asset Concentration**

Is your collateral highly concentrated in any one issuer, issue, sector or country?

Firms will negotiate eligible collateral individually with each counterparty, but it is inevitable that, across a portfolio of counterparties, a collateral receiver will end up with concentrated exposure to certain types of asset. For example, if every collateral agreement negotiated by a particular firm permits US\$ cash and US government securities only, then that firm will end up with a collateral portfolio very concentrated on United States government risk. This particular example would not be likely to present serious concerns. However, in the case of other types of asset, there may be certain issuers or specific issues, certain industry sectors or geographical regions where undesirable concentrations should be avoided.

- **Legal Considerations**

Can local filing formalities for collateral assets be easily satisfied?

Chapter 4 discussed the many legal issues relating to collateralization, one of which was the need to perfect a security interest in pledged collateral. This may require specific filings (for example, filing a Form 395 in England and Wales, UCC-1 filings in the United States). The applicable filings can be driven by the location of the assets or the jurisdiction of insolvency of the counterparty.

In some jurisdictions it is also necessary to register an ownership interest in the assets held. A failure to make the necessary filings or registrations may negate the collateral agreement, and therefore collateral assets that have particularly burdensome filing requirements should generally be avoided. Special attention should be paid to the requirements related to collateral substitutions – some jurisdictions may require new filings or registration upon every substitution event.

6.2 Documentation of Collateral Arrangements

The CSDs provide a convenient structure for documenting collateral arrangements, and set out key parameters relating to the collateral assets. The main parameters to be agreed are discussed below:

- **Eligible Collateral**

It is important to clearly define the specific assets which will be accepted as eligible collateral and eliminate any ambiguity. Most of the securities issued by United States government sponsored enterprises (for example, FNMA, GNMA) are generally regarded as “good” collateral by the criteria, as discussed earlier in this chapter. However, upon closer inspection there are some securities issued by these issuers that have very high price volatility.

As discussed in Chapter 4, the Collateral Asset Definitions standardize the descriptions of many commonly used collateral assets in various jurisdictions and should reduce the risk of mistake or ambiguity as to which assets are eligible for delivery.

- **Valuation Percentage (“haircuts”)**

The Valuation Percentage defines the value that will be ascribed to a particular collateral asset. The market value of the asset is multiplied by the Valuation Percentage to yield the effective collateral value of the asset. The Valuation Percentage is expressed as a number between 0 and 100, where 100 indicates full value for a collateral asset. Generally the only asset receiving a Valuation

Percentage of 100% would be cash, and even the highest quality government securities are frequently rated at 99% or lower.

Collateral practitioners often refer to the idea of a haircut. Technically the haircut is the percentage by which the market value is discounted. Thus Valuation Percentage is equal to 100% minus the haircut.

The haircut is designed to mitigate the depreciation in the value of the collateral asset within the interval between the last valuation of the collateral and liquidation (this interval is sometimes known as the “cure period” or “holding period”). The haircut should account for the volatility of an instrument and essentially discount its value by an amount that reflects the maximum price movement within the cure / holding period. This time period will be a subjective input to the calculation and should reflect the likely length of time that a collateral asset would be held before liquidation occurs, taking into consideration factors such as contractual timings, the time required for internal decision-making and any legally-mandated stay period. Since the volatility of an asset will change through time, agreed haircuts may become outdated and may not provide suitable protection against a shortfall. It is advisable to review standard haircuts on a frequent basis to ensure recent volatility data is captured and is reflected in new collateral documentation. As discussed in Section 2.8, a regular review of asset haircuts is prudent. Where possible, existing documentation should be renegotiated to include the new haircuts, but it would be unrealistic to assume that this could be done on a frequent basis.

- Safekeeping of Collateral Assets

Often collateral assets are delivered between the parties directly, and each makes its own arrangements for holding the assets. These arrangements are not written into the collateral agreement. Sometimes a party will elect defined third parties for the safekeeping of collateral assets. Occasionally, the parties will both agree upon a single tri-party collateral agent, who typically provides the basic custodial functions and also has an executive role in the daily operation of the collateral agreement. In any of these cases, it is possible to set stipulations around the credit quality of the entity holding the assets; if the credit rating of a party safekeeping collateral falls below the designated level, it may no longer be eligible to safekeep that collateral.

- Use of Collateral Assets

A party receiving assets under a security interest form of collateral agreement may be restricted from doing anything with those assets (aside, that is, from liquidating them should the necessary pre-conditions arise). More typically, parties grant each other the right to rehypothecate the collateral assets (as to which, see Sections 2.3 and 4.2). This is probably the most common position negotiated by parties in privately negotiated derivatives collateral agreements.

It is also important to note the underlined restriction in the preceding paragraph. The concept of re-use or rehypothecation applies exclusively to security interest forms of collateral agreement. The English Annex relies upon a title transfer mechanism, not a security interest approach. The difference is critical to the re-use / rehypothecation topic. Under a title transfer agreement the collateral asset becomes the legal property of the receiving party. There is no question of the collateral provider granting rights to re-use the collateral – the collateral belongs to the collateral receiver absolutely and the collateral receiver can use the assets in accordance with its rights as owner.

This distinction is important because there is a legal risk that title transfer collateral could be recharacterized as pledged collateral. This is discussed more fully in Chapter 4, but suffice it to say here that this could lead to an adverse impact on the effectiveness of the collateral agreement. It is therefore vital that, in holding and settling title transfer collateral, nothing is done that could suggest or support recharacterization. For example, it is generally not recommended that the collateral receiver holds title transfer collateral in a segregated, third party custody account in the name of the delivering party (as it might for pledged or security interest collateral). This would be inconsistent with the status of that collateral as being considered owned by the receiving party. One approach to recharacterization risk is to commingle title transfer collateral assets with other owned assets and to use those accordingly.

A firm will need to consider the other aspects of collateral management discussed in the 2005 Guidelines such as operational and funding issues, substitution and counterparty reliability, all of which may have an impact on the ability to use incoming collateral.

6.3 Collateral Financing and Cash Management

Some firms are now managing collateral asset pools approaching US\$100 billion in size. The total amount of collateral assets reported by the 2004 ISDA Margin Survey exceeded US\$1 trillion for the first time ever.²⁴

With such a large volume of assets being controlled in collateral pools, it has become a pre-requisite for firms to establish robust controls and efficient sources of collateral. Collateral assets need to be managed effectively both from a balance sheet and a liquidity point of view.

Collateral management functions need to establish appropriate infrastructure for cash collateral and for securities collateral. Often, there will be slightly different infrastructures established for certain currencies and for different asset types. A typical internal arrangement might be for cash of all currencies to be sourced from the firm's

²⁴ For more information see <http://www.isda.org>.

funding desk; United States government securities will be sourced from the dollar repo desk; other government securities will be sourced from the European government bond desk and the Japanese Government Bonds (“JGBs”, which are discussed in further detail in Annex 1) desk.

The sourcing relationship with each of these internal partners needs to cover two key elements. When the collateral management function is short a particular asset which needs to be delivered out as collateral, it needs to be able to go to the desk concerned and obtain the asset. When the collateral management function is long an incoming collateral asset, it needs to be able to deliver that asset to the desk for appropriate investment (assuming a right to re-use, either through title transfer or right of rehypothecation in connection with security interest collateral).

Beyond these basics there are many different possible models. Some firms operate a mini-treasury function within the collateral management function, which is charged with optimizing all the incoming collateral receipts and outgoing collateral requirements daily; only the net long or short positions in each asset type are then passed off to the applicable trading desk. By contrast, other firms may attribute each individual movement of collateral directly to the trading desks for inclusion in the overall position optimization (i.e., including all of the firm’s positions in the asset, rather than just the positions held as collateral).

In some firms there is a charge from the trading desks for assets supplied, and a return paid on assets invested with them. There may be a bid offer spread between these, or desks may quote choice prices (i.e., the same price either way). In other firms there are no direct charges at all.

The collateral asset portfolio is considered a profit center in some firms, while in others it is a cost center. Sometimes the costs or profits are passed through the collateral management function, which then incorporates them into internal service charges.

For each cash collateral currency and each type and currency of securities collateral that is accepted by a firm, it is critical to have:

- the ability to source the collateral;
- an efficient settlement process for each asset type;
- balance sheet accounts and controls set up to ensure proper book-keeping at all times;
- a complete set of balance sheet reconciliations, regularly performed, with prompt resolution of mismatches;
- a means of tracking funding costs and allocating them to business units; and

- regular measurement and reporting of net funding costs / gains to the business.

Collateral agreements play an important role in supplying relevant liquidity information to the treasury unit and can also be the source of valuable assets to be managed. Collateral agreements can also be a significant liquidity drain on a firm, especially if the firm has executed many agreements with credit rating dependent thresholds. It is essential to have a simulation of the liquidity change impact of such agreements. To accomplish this, some firms simulate the additional liquidity requirements in the event of a downgrade. Although a potential downgrade is the primary concern, it is also good practice to compute the impact of an upgrade.

6.4 Valuation of Collateral Assets

Valuation (of collateral assets and of the underlying derivatives being collateralized) is a substantial topic by itself, and one that the 2005 Guidelines deliberately do not focus upon. This is partly because of the extensive nature of the topic, and also because of the diversity of practice across the marketplace.

However, there are a few basic issues and principles that are common across market participants:

- Valuation Policy

Many firms have established a valuation policy that sets out the basis for the computation, presentation and distribution of valuations. These policies are often written with the concept of a formal customer valuation statement in mind, but a margin call statement sent as part of the collateralization process must also include details of the valuation of both transactions and collateral assets. Therefore, a firm's general valuation policy will also often cover the collateral management process.

- Disclaimers

The valuation policy of a firm may set out the precise form of the legal disclaimer to be used. It seems to be general practice in the market to add an extensive disclaimer to collateral statements and margin call notices. Often these will include the fact that valuations may be based on internal models which may make assumptions about future market conditions, which in turn affect the valuation computed. Disclaimers also typically state that valuations shown are for the purpose of assessing collateral adequacy only, and are not indicative of any actual trading price at which the firm might be prepared to execute a new transaction or unwind an existing transaction. There are many other notices that firms add to their disclaimers.

- Valuation Sources and Timing

Firms generally take valuation snapshots at the end of the business day, typically in concert with the daily books and records-process. This means that, if different trading locations are subject to local close of business hours, there may be differences in valuation time (for example, the JGB trading book may be closed at the end of the Tokyo business day, but the US\$ repo trading book for the same value date will be closed at the end of the New York business day, several hours later).

Valuations are typically consolidated from many different sources, some internal to the firm and others external. In some cases the firm's own profit and loss system provides valuations, and in other cases it relies upon external market data sources. Transaction positions are more likely to be valued based on a firm's internal systems, but this is not necessarily the case. Collateral asset values are more likely to be valued based on external market data sources. In cases where a specific custodian or tri-party collateral agent has agreed, often the third party concerned will provide valuations for the collateral assets.

6.5 Accounting, Tax and Regulatory Considerations for Collateral Assets

Under most regulatory capital regimes, including the new Basel II Capital Accord, collateral assets may be recognized against risk positions, and thus generate a reduction in minimum capital requirements. Some firms have established very measurable reductions in regulatory capital as a result of their collateral programs. Exact details vary by regulatory regime, and there are typically stipulations concerning the type of collateral, frequency of margin calls, percentage coverage of exposure by collateral, legal certainty of collateral enforcement and other factors. Individual firms that are subject to such regulatory capital rules are advised to examine the applicable rules carefully and consult with appropriate advisors.

From a tax perspective, firms need to consider whether the use of cash as collateral has any withholding tax implications, and whether it is necessary as a result to make any modifications to the standard CSDs for this purpose. Annex 1 discusses certain amendments to the CSDs that may be used to address tax issues when the collateral delivered is Japanese Yen and the counterparty is Japanese. The tax position of coupon payments received on securities held as collateral needs to be determined for each applicable tax regime. Similarly, a determination should be made regarding the delivery of collateral assets, and if delivering an asset constitutes a "disposal" for tax purposes; as well as if the answer differs depending on whether a title transfer or security interest form of document is used. As previously recommended, parties should consult with their tax and legal advisors regarding any such considerations.

The impact of recent United States legislation such as the Sarbanes-Oxley Act and the Patriot Act needs to be assessed. As an example, if a counterparty delivers US\$ cash collateral to a firm where there is no other nexus to the United States other than the use of US\$ cash (for example, a French corporate delivers US\$ cash to a Swiss bank), then does that cash collateral constitute an “account” under the Patriot Act, and thus trigger the requirement for the Customer Identification Process to be completed? Does the answer differ if the cash is delivered under a title transfer agreement as opposed to a security interest agreement? The market is still working through some of the implications of these new provisions.

CHAPTER 7 – TRENDS IN COLLATERAL MANAGEMENT

In the final chapter of the 2005 Guidelines we look forward to the emerging trends in the collateral management market. Some of these trends are manifest today and others are more speculative. We hope to report further on these trends in future ISDA Margin Surveys, and also perhaps in a future third edition of the 2005 Guidelines.

7.1 Operational Automation across the Privately Negotiated Derivatives Market

Increasing volumes in privately negotiated derivatives have raised concerns about the ability of dealers, end-users and other clients to process and settle transactions efficiently. The Strategy Group of the ISDA Operations Committee has developed a strategy and implementation plan to achieve substantial automation in the processing of privately negotiated derivatives trades by 2006.²⁵

The Operations Committee's vision is that, by 2006, the professional marketplace will achieve substantial automation in the processing of trades, including: (a) adoption of FpML as a common standard for data representation and exchange; and (b) development of standardized, automated processes for clearing, settlement and portfolio reconciliation of high-volume vanilla products.

Automation will simplify some of the practical issues facing collateral practitioners. For example, automated confirmation-matching may reduce the number of collateral disputes related to missing or disputed confirmations. Automated reconciliations would similarly reduce the amount of time required to review and reconcile portfolios to determine agreement of a margin call. Cash flow netting could reduce the number of payments exchanged between counterparties. These could include payments due for trade settlement, margin calls, interest payments and for other purposes across products.

7.2 Emergence of Data Standards for Collateral Management

As previously recommended, portfolio reconciliation should be a key part of the collateralization process. Efficient and timely reconciliation is critical to operational risk management and client service. As discussed in Section 7.1, automated reconciliations would reduce the amount of time required to review and reconcile portfolios. Portfolio disputes can result in prolonged margin call disputes. Inefficient portfolio reconciliation tools can significantly increase the number of resources required to support a privately negotiated derivatives trading operation while creating operational and credit risk related to proper exposure capture. All of these can negatively affect the level of service provided to a client.

²⁵ "Going Forward: A Strategic Plan" and "Moving Forward: An Implementation Plan" are both available on the ISDA Operations Committee's webpage at <http://www.isda.org>.

In recent years there has been growing interest in the reconciliation of collateral trade populations. The increase in the number of trades between firms and the larger size of trades (and therefore mark-to-market valuations) are the two main factors that appear to be encouraging institutions to move from an *ad hoc* manual reconciliation process to use more automated reconciliation devices.

One obstacle affecting portfolio reconciliation is the quality and level of detail included in portfolio reports. This has prompted the industry to define standards for data, file formats and report delivery mechanisms for margin call reporting. These standards include determining what information is required for different types of privately negotiated derivatives products and the level of detail to be provided.

Another challenge is how that data should be represented in a common language that all market participants can readily decode. The industry is moving towards FpML as a standard for this purpose. FpML will enable firms to deliver portfolio information electronically in a format that allows the file to be read by other systems, thus improving communication between counterparties. Once portfolio data is standardized, counterparties can receive each other's data and automatically reconcile positions and prices, thus reducing the time required to resolve disputes.

ISDA's Collateral Committee established an Electronic Data Interchange ("EDI") Working Group, which published the "*Collateral Trade Reconciliation – XML Data Interchange Format and Minimum Data Requirements Specification*" documents in 2003. These define a standard minimum set of data for the interchange of collateral trade information between parties for trade reconciliation purposes. This minimum data requirement can be exchanged using a number of recommended mechanisms such as comma-delimited flat files or XML structured files (FpML is a particular dialect of XML). Because not all firms use XML, the EDI working group produced an XML file with a defined XML schema and a delimited flat file containing data fields of defined format. As much as possible, the formats have leveraged work previously performed for ISDA's FpML initiative and are available at <http://www.isda.org>.

More recently, an initiative started by a group of hedge funds has driven a significant data convergence effort across banks. The Hedge Funds Data Standards Working Group ("HFDSWG") has published an extension to the FpML schema to describe the essential elements of a position record. This would allow automated comparison and reconciliation of position records between funds and banks (or indeed any other adopters of the standard). The HFDSWG effort is similar in many respects to the earlier EDI effort, but allows a far more complete position image to be represented in the FpML message structure.

A significant aspect of the HFDSWG initiative is the way in which a combined effort of the hedge funds effectively compelled their counterparties to respond in a timely manner to implement the defined message standards. Because the work of the HFDSWG is based on FpML, hedge fund counterparties have been more inclined to use the new standard, the adoption of which is in keeping with the ISDA Operations Committee's

strategic objectives outlined in Section 7.1. This is a critical distinction from earlier efforts that were able to arrive at agreed message standards but lacked the impetus to ensure prompt or consistent implementation. It is certain that further developments in this space will be watched very closely by all market participants.

7.3 More Diverse Eligible Collateral

As noted, the most common forms of collateral delivered under a CSD include cash and government debt. However, there are pressures to diversify the range of assets accepted as collateral, which has been an emerging trend for several years already.

Asset managers often require more flexibility when choosing eligible collateral, as clients of asset managers often have restrictions on what positions such clients can hold. Additionally, asset managers are expected to earn a higher return on cash than the standard interest rate used for cash collateral, and thus prefer not to post cash as collateral. As the number of asset managers trading privately negotiated derivatives increases, the demand for accepting different types of collateral is expected to grow.

As privately negotiated derivatives are used more extensively in Latin America, Eastern Europe, Africa and mainland south-east Asia, collateral agreements will be required with counterparties who are not natural holders of the traditional types of collateral assets (for example, US\$ cash and US government securities). This market diversification has driven, and will continue to drive, a diversification in collateral accepted.

The new Basel II Capital Accord also opens new opportunities for expanding the types of eligible collateral, offering broader recognition of asset types for capital reductions than does the current Basel Capital Accord.

7.4 Stronger Focus on Client Service

Across the industry there is a movement to improve the level of client service and operational efficiency for supporting privately negotiated derivatives trades. The collateral management function is seen as critical to this effort. Central to each firm's success in this endeavor is the ability to:

- hire knowledgeable collateral specialists who are proficient in all products their clients trade;
- provide accurate and timely reporting;
- expand the classes of eligible collateral;
- streamline collateral movements;

- adapt quickly to increasingly complex products;
- reduce number of contact points / centralize client service; and
- educate first-time clients on collateralized trading, ISDA documentation and the collateralization process.

Firms may take the view that the functions described above may be satisfied effectively by outsourcing to external collateralization functions, and it may be that there will be increased movement in this area in the future.

7.5 Emergence of a Convergence Zone between Collateral Management, Prime Brokerage and Client Service

The subtitle for this complex topic should be “The Continuing Evolution of Enterprise Collateralization”, which is a subject covered at length in earlier ISDA Collateral Committee meetings and conferences. Enterprise collateralization was a trend identified some years ago where clients are increasingly demanding that the collateral aspects of their relationship be managed on a cross-product basis within firms. At the same time, risk officers in banks were realizing that a more holistic risk view was beneficial. This trend has resulted in collateral management functions that span privately negotiated derivatives, repo, securities lending, exchange traded derivatives and prime brokerage clients. The state of the art in enterprise collateralization is realized where the integration extends beyond mere organizational consolidation to the ability to net exposures across products or across broker-dealer affiliates for a single counterparty.

Enterprise collateralization provides risk, operational and customer service benefits. From a risk perspective, cross-product hedging may help free up credit lines while producing a better indicator of the true exposure to a counterparty. Operationally, the agreements are easier to support because all positions are held in a single portfolio, and thus require less coordination between groups, with a correspondingly smaller risk of operational failure. Finally, customers often prefer to have a single point of contact for their entire portfolio, rather than multiple contacts for each product or affiliate. There is a need for documentation that links together separate agreements under one global netting agreement. Similarly, more legal clarity is required to identify the legal and regulatory enforceability of such agreements.

It is clear that the enterprise collateralization trend was only an example of a bigger convergence trend. Over the next few years it seems likely that there will be further consolidation of the various flavors of prime brokerage service offered by firms. Some firms offer distinct products in FX prime brokerage, fixed income prime brokerage (sometimes including privately negotiated derivatives) and equity prime brokerage.

Hedge fund clients have long seen the synergies across the risk-taking products offered in FX prime brokerage, fixed income prime brokerage and equity prime brokerage. In the

movement towards enterprise collateralization, they saw the synergies in the collateral management portions of all these products. With the drive towards improved client service mentioned above, the trend is towards integrated and highly capable client service staff who can operate across the entire breadth of a client's relationship with the firm.

It is not entirely clear how this trend will play out over the next few years. It seems a fair bet, however, that it will involve:

- integrated sales coverage across prime brokerage products;
- integrated trade execution (confirmation / affirmation) mechanics, electronically-based;
- integrated client position reporting, delivered electronically;
- integrated collateral pools, with margin calls across all products; and
- integrated and highly skilled post-trade client service, spanning all of the above.

7.6 The Elusive Collateral Clearing Bank

Finally, we turn to a trend that has been anticipated for most of the past decade, but which shows no sign of becoming reality yet: the central clearing bank for collateral movements.

This has been anticipated because it represents a logical and fundamental improvement to market efficiency, conceptually similar to efficiencies made to the domestic and international securities markets 20 to 30 years ago. However, there have been a number of failed past attempts to develop such a central market capability, although it is arguable whether any of them were quite what was needed by the collateral market at the time. It is also clearly an expensive proposition to design and set up.

The need for such a central clearing vehicle is obvious. Today, each firm that intends to make a margin call on a counterparty has to go through the following steps:

- (a) compute the margin call;
- (b) communicate the margin call by phone, fax or email;
- (c) obtain a response to the call, and agree the assets to be moved;
- (d) enter settlement instructions to effect movement of the assets;
- (e) await settlement to occur, normally not the same day; and

(f) verify settlement and update reports.

In the meantime, the counterparty to each of these margin calls is executing the parallel process on its side of the relationship.

This goes on every day between bank pairs, and between banks and their investor clients. Not every relationship experiences a margin call every day, but in many cases there are collateral movements every day or on most days. Considering an arbitrary number of firms, “ n ”, who participate in this process, there will be $n(n-1) = n^2 - n$ repeats of the sequence (a) to (f) each day. Of these steps, probably only (a) is a step that firms would prefer to maintain as an in-house function.

This suggests that a centralized market function could be designed where n participants compute their margin calls to their $n-1$ counterparties each day, and send these to the central location. At the central location, these are matched (because a party X would send its computation for the margin movement required in respect of its counterparty Y; while Y would also send its computation for X). If the two matched within some tolerance, the central function would automatically deem that margin call agreed. This could be repeated for each pair of counterparties, and the resulting movements of collateral therefore could be calculated. The net movement for each participant could be computed. Participants’ accounts at the central function could then be debited and credited as appropriate; net shortages would be identified for participants and remedied. Reporting could then be produced and sent to participating firms to allow the update of risk systems.

It has only been possible here to sketch the outline of such a collateral clearing bank. However, the advantages seem clear: faster settlement of margin movements; less operational duplication; less manual processing; less operational risk; less settlement risk; and more efficiency in the execution of steps (b) to (f) above. It may be that the development of a collateral information exchange, where margin calls could be posted, retrieved and agreed (or disputed) on a secure website, would be a first step towards a collateral clearing bank. Alternatively, such an exchange may operate successfully independently of any collateral clearing bank while still achieving increased automation of collateral movements.

7.7 The Future of Collateralization

Collateral management has emerged as one of the most dynamic areas in a financial institution. Some of the trends described in the 2005 Guidelines are well-established concepts and will continue to progress; others may evolve in a different direction than anticipated. However, it is clear that the demands of the business will require continued innovation and sophistication in the collateral management function. Technology will play an important role as will the introduction of new products and services. An institution with an integrated, well-run collateral management function will hold a competitive edge in the privately negotiated derivatives market place.

ANNEX 1 – SPECIFIC ISSUES IN JAPAN

A1.1 Using the Japanese Annex

This Annex is a discussion of some of the specific issues that arise in Japan, together with a discussion of the Japanese Annex itself. The discussion in this Annex is intended as a guide only, and firms are advised to seek Japanese legal advice.

The Japanese Annex is used to document bilateral collateral agreements under Japanese law between counterparties for transactions governed by an ISDA Master Agreement. The Japanese Annex combines two different legal approaches to the establishment of a collateral arrangement under Japanese law: one is a loan by way of security, which is comparable to the English law concept of title transfer; and the other is based on the creation of a pledge under Japanese law.

One of the most important effects of loan collateral is that the ownership of the loaned assets vests in the collateral receiver and thus the collateral receiver is entitled to use the collateral received, provided that it has not itself defaulted, as though it were the outright owner of those assets. Thus, the Japanese Annex creates an arrangement comparable to the English law title transfer approach in English Annex. One structural difference, however, is that under the Japanese Annex, the collateral receiver may repay the Japanese Yen cash equivalent of any Japanese collateral received in the form of securities. Under the English law title transfer approach, prior to a default, the collateral provider is always entitled, in the case of a Return Amount, to delivery of fungible assets of the same description as those it originally provided. In other words, the collateral receiver does not have the right to deliver a Return Amount in the form of cash if the original collateral provider transferred securities.

If an Event of Default or Specified Condition (each as defined in the ISDA Master Agreement) with respect to the collateral provider has occurred and is continuing or an Early Termination Date (as defined in the ISDA Master Agreement) has occurred or been designated as the result of an Event of Default or Specified Condition with respect to the collateral provider, then, unless the collateral provider has paid in full all of its Obligations that are then due, the collateral receiver may exercise its right to setoff any amounts payable by the collateral provider with respect to any Obligations against any Posted Collateral (Paragraph 2 (a) and (b), and Paragraph 8 (a) (iii) of the Japanese Annex).

Under the Law Concerning Close-out Netting of the Specific Financial Transactions Conducted by the Financial Institutions (the “Close-out Netting Law”, Law No. 108 of 1998, as amended), where a person in respect of whom an adjudication of bankruptcy or an order to commence civil reconstruction proceedings or corporate reorganization proceedings (“Bankruptcy Adjudication, etc.”) is made is a party to a Master Agreement (described herein), at least one of the parties to which is a Financial Institution, including a bank, a securities company, an insurance company etc., and such Master Agreement provides for Close-Out Netting of the Specified Financial Transactions (described herein) which have been entered into under that Master Agreement, then, the properties or claims which are provided for in each of the Bankruptcy Law (Law No. 71 of 1922), the Civil Reconstruction Law (Law No. 225 of 1999), the Corporate Reorganization Law (Law No. 172 of 1952) etc. and are held by either of such parties in respect of all such Specified Financial Transactions under such Master Agreement shall constitute a single claim arising pursuant to such provision for Close-out Netting due to the occurrence of a Close-out Netting Event relating to such Bankruptcy Adjudication, etc. and payable to the person in respect of whom a Bankruptcy Adjudication, etc. has been made or to its counterparty, as the case may be. “Close-out Netting” under the Close-out Netting Law means a procedure by which, upon the occurrence of a Close-out Netting Event (described herein) with respect to a party to the

Specified Financial Transactions entered into under a Master Agreement and regardless of both parties' intentions, the value at the time of occurrence of such Close-out Netting Event of each of the Specified Financial Transactions under the Master Agreement shall be computed in a fair manner based on the actual levels of interest rates, prices of currencies, quotations on securities markets and other indices, and the aggregate net balance of such values shall become a single claim or obligation between the parties. "Close-out Netting Event" means the filing of a petition for bankruptcy or an application for commencement of civil reconstruction proceedings or corporate reorganization proceedings. The ISDA Master Agreement is believed to fall within the ambit of a "Master Agreement" under the Close-out Netting Law. Under the Close-out Netting Law, not only the derivatives transactions, such as over-the-counter derivatives transactions etc., but also lending or deposit of money or securities effected for the purpose of securing such derivatives transactions falls within the ambit of the "Specified Financial Transactions".

There exists a view that the Japanese Annex constitutes a Master Agreement together with an ISDA Master Agreement in connection with the Close-out Netting Law. This is because the Close-out Netting Law only requires that the ISDA Master Agreement and the Japanese Annex be interrelated, which is the case. However, there is another view that the obligation under the Japanese Annex needs to be set off against the obligation under an ISDA Master Agreement calculated after Close-out Netting thereunder. According to this view, the Japanese Annex would not be entitled to the benefit under the Close-out Netting Law (even if the loan collateral was adopted) because it would not be viewed as a Master Agreement jointly with an ISDA Master Agreement. This would also be because the Japanese Annex does not specifically adopt the automatic termination / set-off clause in the event of default and thus it would not qualify as a Close-out Netting clause under the Close-out Netting Law.²⁶

While such set-off approach might be feasible under Japanese law in light of the broadly recognized enforceability of set-off in the event of a debtor being subject to insolvency proceedings or attachments by creditors (for example, see the judgment by Grand Bench of the Supreme Court as of June 24, 1970, "Minshu" Volume 24 Number 6, Page 687), it would involve some legal uncertainty given some of the legal problems that have not yet been clarified by the Japanese courts. However, most of such problems would be resolved or eliminated if the Close-out Netting Law were to apply. It is possible to ensure that the Close-out Netting Law applies by choosing the loan collateral approach (rather than the pledge) and by amending the Japanese Annex so that it qualifies more literally as a Close-out Netting clause under the Close-out Netting Law, by amending Paragraph 8 of the Japanese Annex to include a provision similar to the Automatic Early Termination provisions of Section 4.1(b) of the 2001 Provisions.

Please note that the Close-Out Netting Law does not shield the eligible Master Agreements or the Specified Financial Transactions entered into from avoidance risk in an insolvency.

The recent amendment to the Bankruptcy Law permits the close-out netting of the transactions under a master agreement on condition that (i) each of the transactions is a contract relating to a product which has a market price on an exchange or other market, and (ii) the purpose of the transactions under the master agreement cannot be achieved unless they are performed on a certain date or certain period of time due to the nature of such transactions. The amendment to the Bankruptcy Law is considered to permit a close-out netting even if both parties are not Financial Institutions. The Bankruptcy Law does not specifically cover collateral arrangements relating to a netting (master) agreement. Whether this provision covers credit support documents

²⁶ Firms should note that the above are views only and that ISDA has published a Collateral Opinion on the enforceability of the New York Annex, the English Annex and the English Deed in the case of the insolvency of the collateral provider in Japan. The Collateral Opinion is available to ISDA members from the ISDA website, <http://www.isda.org>.

is still open to interpretation. Arguably, if such credit support document forms a part of a single agreement and together is construed as one master agreement, this new legislation may provide basis for the robust enforceability of credit support documents falling outside the scope of the Close-out Netting Law.

The pledge approach had been less popular because of the inability of the collateral receiver to sell or otherwise freely dispose of the pledged asset, the practical limitations on the use of rehypothecation and most importantly, a risk of stay over enforcement actions. The pledge approach became less popular with the enactment of the Close-out Netting Law, which only protects collateral arrangements structured as a loan. However, there are certain instances where a collateral provider insists on posting collateral in the form of a pledge, because of *e.g.* concern over the collateral receiver's creditworthiness. If a Japanese Annex is entered into to secure claims arising out of commercial transactions, within which, under most circumstances, wholesale derivative market transactions fall, the parties may agree that the collateral receiver may apply (and obtain the title to) the pledged asset to the satisfaction of such claim in such Japanese Annex. Since there is no statutory provision staying such application by the creditor, it may be arguable that the non-defaulting party may achieve *pro tanto* satisfaction of its claim. There is an argument that the preservation order (generally thought to be issued against the debtor but could be issued in a manner as the court deems necessary to preserve the debtor's assets) could apply to such actions by the secured creditor. An automatic termination clause together with the simultaneous application of the pledged asset may enable such collection before the issuance of such preservation order. Especially, securities credited in the Pledge Column under the Book-Entry System, discussed below, can be unilaterally transferred to the Holding Column of the collateral receiver.

A1.2 Using the Amendments to the NY Annex and the English Annex for Japanese Counterparts - Withholding Tax on Cash Collateral

When a Japanese resident bank receives Japanese Yen from a non-resident bank, it is the market practice in Japan that this collateral receiver pays the Interest Amount less withholding tax to the nonresident firm (collateral provider). In the Japanese tax system, interest income from Japanese Yen deposits with a bank located in Japan, which is paid to a foreign corporation (i.e. a foreign bank) is taxed by withholding at the source by the Japanese collateral receiver (Income Tax Law, Article 212, clause 1) unless such interest income is attributable to a branch or other permanent establishment in Japan (and the certificates required by the regulations are submitted to the collateral receiver). However, because the English Annex and the New York Annex are part of the Schedule to the ISDA Master Agreement, the Gross-Up clause specified in Section 2(d) of ISDA Master Agreement would apply to the interest income. This would allow the collateral provider to argue that the payment should be a grossed-up based on Section 2(d), and ask the collateral receiver not to deduct the withholding tax. In order to resolve the discrepancy between the market practice and the documentation, ISDA's Japanese Collateral Committee requested the publication of amendments to the CSDs which specifically provide that Section 2(d) of the ISDA Master Agreement does not apply and that such tax is not an Indemnifiable Tax (as defined in the ISDA Master Agreement), when the counterparty is from Japan. ISDA notified members that the publication of these amendments does not suggest that taxes on the Interest Amounts (as defined in the ISDA Master Agreement) would be Indemnifiable Taxes if the amendments were not made

to CSDs. Instead, these amendments were intended to clarify (rather than change) the tax burden, and may be included in CSDs with counterparties from countries other than Japan.²⁷

A1.3 JGB Collateral and Settlement Issues

Change of System Regarding Settlement of Japanese Government Bonds (“JGBs”)

JGBs are legally classified into three types: physical certificate, registered bond and book-entry bond (“Book-entry JGBs”). Most of the outstanding JGBs are held and transferred in the form of Book-entry JGBs.

The structure of the JGB Book-entry System has changed to the new system under the Law Concerning Book-Entry Transfer of Corporate Bonds, etc. (Law No. 75 of 2001, the “Law”), as of January 27, 2003.

Under each of the new system and the previous system, (i) JGBs are managed as a balance recorded in the accounts on the books of settlement institutions; (ii) transfer of these securities is effected by book entry; and (iii) both systems have a tiered structure, with intermediaries such as banks and securities companies interposing themselves between the central securities depository and JGB holders.

However, the legal implication of the transfer of JGBs under the new system is completely different from the previous one. Under the previous system there was no express statutory provision to support the validity or enforceability of the book-entry transfer of JGBs. Therefore, one must rely on the general theory of transfer of possession of physical negotiable instruments under the Civil Code and the Commercial Code to recognize the transfer of Book-entry JGBs and the perfection thereof. Such theory is based on the existence of physical certificates, but under the previous system only small numbers of JGBs were held in physical certificate form by the Bank of Japan on behalf of all holders (directly or indirectly) and therefore it was questionable to what extent one may rely on this theory. Another alternative was to argue that this book-entry transfer mechanism should be authorized as the method of transfer and perfection of JGBs as the practically-followed and -supported method of transfer and perfection which is not expressly written in the law (*meinin-houhou*), although there was still legal uncertainty as it was not entirely clear whether the Japanese courts would support such argument.

On the other hand, under the current system based on the Law, such issue has been settled by express statutory provisions and therefore Book-entry JGBs are dematerialized and the transfer of Book-entry JGBs is effected and perfected by a book entry in accordance with the Law.

Under the current system, the Bank of Japan, as a manager of the current system, has established several rules and regulations (the “BOJ Regulations”) which stipulate the details and practical aspects of the Book-entry JGB transactions. Thus, if firms wish to transfer Book-entry JGBs, use them as collateral assets or use them for other transactions, firms need to comply not only with the Law and its ordinances, but also with the BOJ Regulations in order to be validly made and perfected.

²⁷ ISDA understands that some firms interpret Section 10(b) of the New York Annex as providing that the provider of Posted Credit Support is the party that bears the tax burden relating to Interest Amounts on such Posted Credit Support, and accordingly, that the gross-up provisions in Section 2(d) of the ISDA Master Agreement would not apply to the Interest Amounts, in any event.

Please note that even under the current system the parties involved are not completely free from insolvency risk. However, the Law provides certain protection for investors of Book-entry JGBs and other book-entry securities under the Law (Participant Protection Trust, “Kanyusha Hogo Shintaku”) in the event that AMI (as defined below) or the Bank of Japan should become bankrupt.

Transfer of Book-entry JGBs

The transfer of Book-entry JGBs can be implemented only through accounts established for JGB book entries. Such accounts can be opened and managed only by certain financial institutions specially designated by competent Japanese governmental agencies (Financial Services Agency, Ministry of Justice and Ministry of Finance) and approved by the Bank of Japan (herein referred to as an “Account Management Institution” or “AMI”). The Bank of Japan and AMI have formed a “hierarchical structure” (generally three- or four-tiered from the Bank of Japan to the foreign AMI), at the top of which is the Bank of Japan. An AMI opens its account at either the Bank of Japan or at another AMI (the “Direct Upper AMI”), which in turn opens its account at either the Bank of Japan or another AMI, and so on.

In order to transfer the JGBs under the JGB Book-entry System, (i) each of the transferor and the transferee must open an account for the JGBs at an AMI or the Bank of Japan, (ii) the transferor must transfer the balance of the JGBs from its account to the account of the transferee by issuing instructions to its AMI and (iii) the balance of the JGBs must be credited to the Column for Holding.

- *Open Account:* In order to open an account for the JGBs, it is necessary to enter into an agreement with an AMI, which shall contain certain articles which are stipulated in the BOJ Regulations.
- *Transfer of the Balance to the Transferee’s Account:* The balance of the JGBs will be transferred only upon and in accordance with the instructions of the transferor. If the transferor issues instructions to its AMI (the “Transferor’s AMI”), the AMI shall debit the account of the transferor in accordance with its instructions. Further, the transferee’s account will be credited through the “hierarchical structure” of the JGB Book-entry System in accordance with such instructions.
- *Credit to the Column for Holding:* An account for the Book-entry JGBs has two subdivisions: one is a subdivision into which the Book-entry JGBs transferred as a pledge shall be credited (the “Column for Pledge”); and the other is a subdivision into which the Book-entry JGBs shall be credited for all other purposes (the “Column for Holding”). As we mentioned above, the balance of the Book-entry JGBs shall be transferred in accordance with the instructions of the transferor; the transferor needs to instruct its AMI or the Bank of Japan, as the case may be, to credit the Column for Holding of the transferee if it intends to transfer the title of the Book-entry JGBs.

Pledge under JGB Book-entry System

In order to pledge the Book-entry JGBs under the JGBs Book-entry System, (i) each of the transferor and the transferee must open an account for the JGBs at an AMI or the Bank of Japan, (ii) the transferor must transfer the balance of the JGBs from its account to the account of the transferee by issuing instructions to its AMI and (iii) the balance of the JGBs must be credited to the Column for Pledge. The collateral provider needs to instruct its AMI or the Bank of Japan to

credit the Column for Pledge of the pledgee if it intends to establish the pledge on the Book-entry JGBs.

Japanese Annex and Book-entry JGBs

As discussed in A1.1, the Japanese Annex adopts two legal approaches to the establishment of a collateral arrangement under Japanese law, pledge and loan approaches. In the case of the pledge approach, the Column for Pledge of the collateral receiver needs to be credited for the creation of pledge on the Book-entry JGBs. In the case of a loan approach, the Column for Holding of the collateral receiver needs to be credited to transfer the ownership of the Book-entry JGBs which are the subject of the loan.

A1.4 Japan's Involvement in the Hague Securities Convention

As discussed in Chapter 4, the Hague Securities Convention was agreed in principle in December 2002.²⁸

If Japan ratifies the Hague Securities Convention, while conflict of laws issues may be resolved, if the account holder of the JGBs and the relevant AMI enter into an account agreement that adopts the law of jurisdiction other than Japan, there may be additional uncertainties involved as to how and to what extent Japanese statutory provisions will apply to matters involving JGBs in conjunction with such governing law.

Japanese law would recognize proprietary interests of the account holder in the sense that the account holder has a direct claim exercisable against the issuer of the securities and that the AMI (or the Bank of Japan in its capacity for JGBs) does not have any property right in the securities credited in the accounts maintained with them and would be merely responsible for maintaining accounts and making book-entries. It would be more problematic where a Japanese investor holds interest in a foreign bond through an account maintained at an AMI agreeing that Japanese law would determine the nature of his rights arising from such holdings. These issues may be resolved in the future by the on-going collateral law reform efforts discussed in Chapter 4.

²⁸ Japan was represented by two leading Japanese scholars, the Ministry of Justice as well as market practitioners. Most notably, Professor Hideki Kanda of the University of Tokyo served on the drafting committee of the Hague Securities Convention.

ANNEX 2 – THE MARGIN CALL PROCESS–REPORTING

The collateral management process is of interest to many different functions within the firm, as well as to external parties. The possibilities for reporting are many and complex. This annex sets out the typical types of external and internal reporting that the collateral management function may prepare.

External Reporting

A variety of reports and other information are exchanged between the collateral management function and external parties and can be delivered in a variety of formats including HTML, Microsoft Excel, FpML, fax, SWIFT, email or secure website.

In the privately negotiated derivatives markets, a number of reports are often exchanged such as margin call notices, portfolio and collateral valuation statements, interest statements and reconciliation reports. Statement details often include the following:

- *Portfolio detail:* trade reference, transaction type, trade date, value date, notional amount, valuation, margin call currency, net exposure per trade, call currency, FX rates used for conversion (plus time stamp and source of rates), trade-specific margin and valuation information (independent amounts, initial margin charges, specialist mark-to-market calculation for a deal – valued at LIBOR etc.).
- *CSD detail:* margin call currency, FX rates, Thresholds, Minimum Transfer Amount, rounding amount, Independent Amount, rounding applied (up or down), offices included, settlement instructions for both collateral provider and collateral receiver; credit rating used.
- *Collateral and collateral confirmation:* cash or securities, security names and ID reference (ISIN), currency, nominal, haircut, prices dirty and clean (plus time stamp and source of prices), valuation, post-haircut valuation and FX rates (plus time stamp and source of rates).
- *Valuations:* The collateral group is often responsible for providing customer valuation statements to clients, which differ in content and format based on the underlying transactions. Certain basic issues and principles regarding (i) the valuation of collateral assets, (ii) the valuation of the underlying derivatives being collateralized and (iii) the use of related disclaimers are discussed in Section 6.4.

Internal Reporting

A variety of reports and other information are exchanged between the collateral management function and other interested parties and departments within the organization. The delivery method for these reports is typically an interface to the collateral management system or via email. The type of reporting typically varies depending on the identity of the recipient of the information. Each firm may have one or more of the following areas in separately named functions, or may have one function to cover all areas.

- *Risk:* Collateral-related information is used for a variety of purposes by risk managers. Some of that information is housed within the collateral management function, either in systems or other databases. Some examples of the types of reporting exchanged include:

- counterparty credit limits, tenor / term limit, volume, product lines collateralized by counterparty (i.e. products excluded from collateral agreement), counterparty risk profiling, mark-to-market exposure by counterparty, un-collateralized event of default exposure by counterparty, pending collateral delivery date by counterparty.
- *Finance / Product control:* The finance department of product controllers also relies on collateral-related information. Some examples of the type of information provided to / from the finance department include parent company guarantees including amount guaranteed (daily reporting), guarantee basis (up to mid market etc.), parent company specified in the guarantee, interest accrual (payable and receivable), cost of collateral, book cost, allocation and recharge for collateral, loss allocation etc., regulatory capital reporting and calculations, valuation enquiries and independent verification and price validation.
 - *Treasury:* The treasury department or funding desk is also closely intertwined with the collateral management function specifically relating to sourcing collateral assets. Some of the information exchanged between the two groups includes: collateral funding figures (T+0,1,2,3), funding trends for collateral, funding predictions for future collateral movements, repo trading, source of securities and financing (in and out).
 - *Front Office / Valuations Department:* The front office and valuations department exchange the following information with the collateral management function: valuations and transaction data, valuation enquiries, pricing, reset agreements.
 - *Transaction / Documentation / Legal:* Information exchanged includes: CSD information and any tailored terms, legal opinions, details about CSD negotiation.
 - *Operations:* The operations groups, both on the derivatives side and as the settlements side provide and receive information from the collateral management function, such as: confirmation checking, trade validation, reset details, trade reporting, fail reporting (transaction settlement / fail) and cost, client capability (as well as event of default) / custodian capability.

ANNEX 3 – COLLATERAL MANAGEMENT TECHNOLOGY

The range, complexity and volume of collateral agreements have increased steadily over the past decade. These factors have led to a demand for very specialized and efficient collateral management technology in some firms, and in some cases outsourced service capabilities. The market has responded with a range of options, some in-house and other delivered by vendors.

This chapter highlights some of the key considerations relating to technology and vendor services for collateral management.

A3.1 Business Requirements

Prior to embarking on any technology implementation for collateral management, it is important first to understand the particular requirements for the firm concerned – there is no one-size-fits-all technology solution.

It is especially important to answer questions such as:

- *Is technology required to support current volumes or future planned growth? And if the latter, what growth profile is expected?*
- *Is technology required to support core operational aspects of the collateral management process only? Is support required for credit risk management functions related to collateralization? What other user requirements exist?*
- *Is technology required to provide a fully comprehensive turnkey solution for collateral management? Or is a more intricate implementation required for integration of a range of existing complementary systems?*
- *What budget is available? What delivery timescales are required?*
- *Is adding technology to create or automate an in-house process the most optimal solution? Have other alternatives such as outsourcing been considered?*

Armed with these and other answers, it is recommended that firms document the business and user requirements for collateral technology thoroughly before moving to the next step.

A3.2 Solution Selection

There are essentially three general solutions to creating a collateral management function:

- in-house process supported by in-house developed technology;
- in-house process supported by externally developed (vendor) technology; or
- in-house process supported by external outsourced service provider.

All of these options are based around some level of in-house process. Although there are outsourced operational service providers in the market, and also tri-party collateral agents, all of the available options require a minimum of involvement in the collateralization process. Indeed,

this is quite desirable, because in a crisis situation it is important to have internal information and control over the collateral process.

Most firms that developed collateral programs before 1999 have developed in-house technology. Many that have created programs after 2000 did so using vendor technology. This inflexion point marks the availability of robust, richly featured collateral management systems from a number of vendors. Given the commoditized nature of basic collateral management technology, this trend is likely to continue, although it is noteworthy that firms who offer sophisticated collateral products, such as value-at-risk based initial margin, normally do so using proprietary technology, both for reasons of sophistication (these functions not being widely embedded in vendor systems) and competitive advantage in this non-commoditized part of the collateralization space.

It is typical that solution selection processes include a Request for Proposal stage, where different solutions and vendors are reviewed against each other. This can be a swift exercise, but often spans several months of evaluation of the alternatives.

A3.3 General Characteristics of Collateral Systems

When selecting collateral management systems or outsourced services, the following general capabilities and considerations should be taken into account:

- recording of key attributes of collateral documentation and client profile;
- capture of required market data, directly or via feeds;
- capture of transaction and collateral records, directly or via feeds from applicable systems;
- settlements processing for collateral assets;
- management reporting;
- client reporting;
- portfolio reconciliations;
- archiving;
- scalability of processes for increasing volumes;
- risk analysis;
- rehypothecation control capability;
- electronic communication capabilities (for example, with clients, custodians etc.); and
- cost vs. functionality.

A3.4 Collateral Calculation Engines

The collateral calculation “engine” is the core of a collateral management solution which is used to compute collateral adequacy and any required margin call. There are four general classes of engine that may be employed: (i) spreadsheet or simple database solutions; (ii) outsourced solutions; (iii) in-house developed application systems; or (iv) vendor supplied application systems.

Spreadsheets and Simple Databases

For many smaller collateral management programs the tracking of agreements and exposures is possible with spreadsheets, possibly progressing onto a database solution. This will work at a low volume, low complexity level but requires a reasonable understanding of the collateral management processes as it is difficult to incorporate the finer details of collateral agreements onto a spreadsheet / database, and some operator intervention may be required to obtain best results. There are limitations to spreadsheet functionality and there is a practical limit to the number of agreements that can be safely managed this way.

Outsourced Solutions

It is now possible to outsource the complete collateral management function to an agent, a solution that may be suitable for some lower volume collateral programs. Another alternative is the use of tri-party collateral management services. This model is well proven and especially popular in the repo market, but seems to be used somewhat less in the privately negotiated derivatives market.

It should be noted that the outsourcing third party operates on the client’s behalf, and the client still requires a significant degree of business understanding, and needs to be part of the process. This is especially true in any unusual or crisis situation.

In-house Application System Solutions

Many firms have developed large bespoke collateral management systems operating across consolidated operations.

The in-house design relies on a high level of internal business knowledge or the skills of experienced collateral management practitioners acting as consultants in conjunction with internal technical development teams. This option seems to work best for larger organizations with the available resources to support their requirements.

The downside of this approach is that it requires continuous investment maintenance and updates to improve the system and to keep pace with evolving market trends. This tends to be expensive over time.

Vendor Application Systems Managed Internally

Buying “off the shelf” has become a popular option over the last three to four years. A vendor collateral management application provides the business looking to start up or expand with a secure platform on which to operate. In most cases the application will have been designed and is supported by experienced collateral practitioners.

Vendor systems typically have good scalability of user numbers, agreement details, trade and collateral entries. They also benefit from continuous enhancement reflecting up-to-date market demands for collateral management applications, with each user benefiting through new releases and shared market concepts originating across the entire client base of the vendor.

The downsides are the reliance on external support and maintenance and the sacrifice of some flexibility to adapt to changes in business requirements.

A3.5 Collateral Management Data Feeds

Trade Information

In most cases the collateral management area will need to receive trade-related information from elsewhere in the organization. From the most basic level, using spreadsheets, to the more advanced application based alternative, a feed of trade-related information is required.

The call frequency for most collateralized agreements is now daily, requiring at a minimum, trade details and valuations supplied once within a 24-hour period. The positions and related figures are usually based on the previous day's close of business values.

The collateral function should ideally have a minimum of trade level information, so that it may distinguish the trades between parties and agreement types as part of the "trade mapping" process (assigning trades under specific agreements). The receipt of trade level information should be monitored, ideally reporting the number of trades processed and the date / time of successful completion or of failure.

Collateral Information

If the collateral booked against each agreement is maintained within the worksheet or application, then a feed of market data including the underlying asset price details may be all that is required. The position of underlying assets is maintained and reported within the collateral management application, with the added ability to value assets on a real time basis. If the collateral is required in other systems, such as credit, then either a regulated report or direct feed may be required.

For those collateral management programs that have chosen to book, value and manage collateral independently of the collateral management calculation engine, collateral details can be obtained via a trade feed.

Market Data

Market data can be owned and managed by the collateral management program or supplied and maintained by other internal functions within the organization. When a collateral management program owns the market data, it may be responsible for sourcing and feeding the required information.

Larger programs with access to organization-wide market data may choose to apply the organization standard for pricing, currency and interest rate sources. For example, the bond prices may be sourced from the internal repo or bond trading desk, the currency rates from the FX / money markets desk and the interest rates from a central rates database or swaps desk. This provides consistency for internal reporting, but at the same time may create operational dependencies.

Collateral Assets – Corporate Actions, Coupons and Dividends

A holder of collateral assets under a CSD may receive coupons or dividends from the asset issuer. The CSD will define how such distributions are to be dealt with, but often it will be necessary to pass through the distribution to the party that delivered the collateral asset, or to manufacture an equivalent cash flow.

Capturing the action and resulting payment requirements is an operational requirement for any collateral program accepting bonds and equity collateral. The collateral manager is faced with two options when a corporate action is due: (i) track what is about to occur and request a substitution; or (ii) accept the coupon / dividend proceeds and pass them to the giver within the specified time. Both options have implications, with the first requiring awareness of the impending action and an acceptance of settlement risk associated with the substitution and the second having withholding tax implications.

Which option is adopted depends largely on internal program policy. In both cases the process can be managed with appropriate systems or spreadsheets. In both cases, it is important to recognize and note the record date and payment date for all issues. The party holding the security on the record date will receive the proceeds from the issuer irrespective of which party holds the assets on the payment date. Simple reporting may be all that is required to identify which issues are approaching record date. This will require market data confirming the payment schedule. The collateral manager may need to calculate the record date based on market convention applied to that instrument type.

Following a coupon or dividend effective date (usually record date + 1), the dirty²⁹ price of the underlying asset will drop to equal or less than the value of the clean price (dependent on the applied ex-dividend period). This should be reflected in the collateral valuation.

With some comprehensive collateral management applications, it is possible to receive advanced warning of impending record dates, possible substitutions and payments.

Currency Conversion Rates

The conversion of values from one currency to another is integral to the collateral management process. As all CSDs have a defined base currency, it is a requirement that any worksheet or application converts the trade and asset level native currency values into the specified base currency.

Currency information is usually required once a day. For most collateral management purposes, a real-time table of rates is not required or desirable. As most agreements are still based on close of business valuations, it is appropriate that the rates are also close of business. In some cases the FX rate that should be applied to an agreement will be stipulated in the documentation. Applying specified conversion rates to individual agreements provides complications for any collateral solution, whether system- or manually based.

²⁹ “Dirty price” means the price of a security inclusive of accrued interest or dividends. By contrast, the “clean price” will be the price for the security ex-coupon or ex-dividend.

Interest Rates

The reference rates used in the collateral management process depend on the terms stated in the CSDs. The most commonly applied reference rates are published on a daily basis.

It is necessary to keep a full historical record of each published reference rate used in order to calculate interest on cash collateral over an agreed period. Usually, this period is over one calendar month. When applying the daily rate for cash it is important to factor in any agreed spreads. For example, if the Federal Funds rate is 3.55% and the spread was agreed at minus 25bp, the applied rate for the day will be 3.30. When a collateral system is used, any such spread is usually captured as part of the agreement terms and automatically included in the relevant calculations.

A3.6 Generating Margin Calls

Required Information

The critical data behind any margin call, whether applied in a collateral management system or manually on spreadsheets, incorporates three things: documentation terms, trade exposures and collateral values. Agreement terms identifying party and counterparty, branch coverage, eligible products, etc., are unlikely to change on a daily basis. These “static data elements” create the rules against which trades and collateral can be included, valued and reported.

Identifying Margin Calls

The type and terms of a collateral agreement dictate the products / trades agreed between the two parties. The net exposure value of the trades included in the portfolio, applied against any collateral given or taken under the terms of the agreement, such as Threshold, generate a net exposure or call requirement. The “call requirement” is unique to each agreement and is typically represented in the form of a statement. Whatever format the collateral function uses to gather information (spreadsheets or system), regular statement level information should be generated.

A3.7 Calculating Exposure

Mark-to-Market Values

The basic requirement for calculating the exposure to be collateralized is the mark-to-market value of the portfolio of transactions. In most cases, the mark-to-market figure for each trade is generated in the trading source system. The collateral management solution collects the values from these source systems.

Independent Amounts

Independent amounts may be fixed amounts or percentages of notional defined in the CSD and captured in the collateral management system. They may also be set trade by trade by credit officers, which is an inefficient practice that has become rare.

Independent amounts are increasingly being determined by a value-at-risk (“VaR”) calculation. This is often performed by a risk system and the result fed to the collateral management application for inclusion in the margin call calculation.

A3.8 System Based Workflow Management

“Workflow” is a feature of vendor collateral applications that has become increasingly popular in the last few years, although it is less often seen in systems developed in-house.

Event-driven workflow tools provide step-by-step guidance for operators through the different aspects of a collateral adequacy calculation and margin call. They allow for the tracking of activities in progress, and provide management with a transparent review and approvals processes. Many collateral management applications now operate on a consolidated basis, incorporating documentation information, exposure calculation and asset management facilities in one environment. Each of these core areas can require workflow to control the agreement creation process and day-to-day exposure management and collateral booking against each account.

A3.9 Margin Call Notification

Once a call is calculated the decision to make the call must be made. In most cases the collateral management function’s main concern is in addressing the “Call” or “Recall”³⁰ items. Notifying the counterparty of the need to Call or Recall or Call and Recall combined can be performed in a number of acceptable ways. In the repo or securities lending markets, a request for margin is usually accepted verbally. In the privately negotiated derivatives markets it is normal to provide written notification of a request. Historically, and still today in many cases, this was accomplished via a printed letter that was faxed from one party to the other; acknowledgement of the request was by return fax. More recently, margin notification details have been exchanged via email or, in some cases, by publication via a secure website for review.

A3.10 Trade and Collateral Reconciliation Engines

The reconciliation of trade portfolios should be a regular occurrence for collateral managers. As previously discussed, the failure to reconcile on a regular basis may lead to disputes. Following the dispute of a margin call amount, for example, it is common market practice for large firms to exchange trade files in electronic format. Collateral management systems need to have broad capabilities to accept such files in a variety of formats. A flexible matching engine to reconcile the different files is a very useful technology tool. The best of these engines have the ability to apply “fuzzy” matches where items appear very similar but not perfectly matched. Some will also allow for transactions booked as multiple legs to have their constituent elements connected before attempting to match the entire structure against the counterparty’s records. The ability to store details of previously matched trades is also helpful, since this will expedite future matches by not having to process completely these pre-matched records.

³⁰ As used in the context of many collateral management systems, to “call” for collateral means for Party A to initiate a request for a new delivery of collateral from Party B. To “recall” collateral means for Party B to initiate a request for the return of collateral previously delivered to Party A, that collateral now presumably being excess to the collateral requirement.

ANNEX 4 - CONTRIBUTORS TO THE 2005 GUIDELINES

The four 2005 Guidelines Working Groups met under the leadership of the New York and London-based Collateral Committee co-chairs:

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