ISDA 1999 COLLATERAL REVIEW

ISDA®

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EXECUTIVE SUMMARY

Since its introduction in the early 1990s, collateralization has been the fastest growing credit risk mitigation technique in use within the privately negotiated derivatives industry. The aggregate value of the collateral employed to protect credit exposure in the derivatives and foreign exchange markets as at January 1999 is estimated to be between US $175 billion and US $200 billion (see the discussion in section 1.3 of Part 1, below).

In 1997 and 1998, the effectiveness of collateral as a credit risk protection strategy was tested by some of the most volatile market conditions experienced this decade. Those conditions presented a number of significant challenges to collateral managers and highlighted the operational, legal, and other risks which collateralization presents.

Background

In January 1999, the International Swaps and Derivatives Association (ISDA) organized a two-day meeting of senior collateral practitioners, to discuss their experiences during the recent periods of market stress, to assess the effectiveness of existing collateral management processes and procedures, and to offer recommendations for changes and improvements where necessary. In addition, the practitioners shared certain general observations on recent developments in the market. These included observations on the need for a wider variety of collateral, expansion in netting and collateralization (both across products and across legal entities) and on the desirability of simplified collateral documentation. The discussions at that meeting are reflected in the ISDA 1999 Collateral Review.

Participants at the January meeting were also requested to complete a survey questionnaire. The responses to that survey have provided the basis for a quantitative analysis of how collateralization is being used today as a credit risk mitigation technique. The results of that analysis are summarized in Part 1 of this paper, together with a discussion on current practice.

Project Objectives

As the ISDA 1999 Collateral Review project progressed, the following key objectives were established for this project:

- document the state of collateral management practice as of early 1999;
- analyze the lessons learned from the experiences of collateral management practitioners during the periods of market stress in 1997 and 1998; and
- provide leadership in identifying and implementing possible improvements in market practice.

Summary of Findings

Collateral practitioners agree that, in general, collateralization proved to be a highly successful credit risk mitigation tool during the market stress of 1997 and 1998. Several firms reported that credit losses as a result, for example, of defaults by hedge funds in 1998 were significantly reduced or even eliminated because robust collateral agreements were in operation.

Practitioners also emphasize that collateral does not solve all problems. It does introduce risks of its own - principally legal and operational risk, but also risks associated with the issuer of collateral assets, concentration in the pool of assets taken as collateral, correlation between an underlying exposure and collateral taken to mitigate that exposure, and the potential difficulty of selling collateral assets at a strong price. Experience over the past two years has also taught that problems can arise with internal data quality, the speed of market movements, and extreme conditions (such as the Russian debt moratorium and consequent disruptions in pricing transparency and market operation). Any of these potential risks can reduce the effectiveness of even the most advanced collateral management program.

The ISDA 1999 Collateral Review discusses these experiences in more detail, and then looks forward to ways in which the effectiveness of collateral can be enhanced still further. A series of 22 recommendations are set out in Part 2 of this paper. The recommendations fall into the following categories:

- Credit Analysis and Collateralization;
- Managing the Risks of Collateralization;
- Dispute Resolution;
- Shortening the Collateral Cycle to Reduce Exposures;
- Expansion of Collateral Types;
- Initial Margin;
- Legal and Documentation Issues;
- Cross-Product Netting and Collateralization; and
- Substitutions and Liquidity

Action Plan

Part 3 of the paper presents action plans, based on the recommendations targeted, at individual institutions, ISDA and other industry groups, and regulators and/or legislators. The ISDA 1999 Collateral Review also establishes that the impetus to implement the recommendations should come from collateral managers, appropriately supported by their institutions and industry associations.

Industry associations, working individually and in cooperation with each other, will need to focus on some of the recommendations, particularly those that relate to documentation enhancements and support for regulatory advancements. Industry supervisors will note that some recommendations are dependent upon their consideration of existing regulatory (and, in particular, regulatory capital) requirements. It should be noted that the advancement of collateralization as a risk mitigation technique requires both legislative and regulatory support. Complexities in the legal systems of certain jurisdictions present impediments to effective collateralization. In certain jurisdictions, reform of laws relating to secured transactions are essential to the advancement of prudent risk management. ISDA's Collateral Committee is prepared to provide the necessary technical expertise and leadership to identify the challenges and to move the industry forward strategically.

The action plans set out in Part 3 make specific recommendations under the following headings:

ACTION PLAN FOR INDIVIDUAL INSTITUTIONS

- Understand the Role of Collateral in Credit Risk Management;
- Evaluate the Organizational Structure and Operational Risks of the Collateral Management Function;
- Endeavor to Minimize Collateral-Related Disputes;
- Review Policies Regarding Acceptable Collateral Types, Haircuts, Cash, and Initial Margin Requirements; and
- Ensure Awareness of the Legal Environment in which the Collateral Function Operates.

ACTION PLAN FOR ISDA

- Establish Working Groups to Discuss Recommendations Affecting the Industry;
- Review and Enhance the Structure, Provisions, and Negotiating Mechanisms of the Existing Standard Form ISDA Credit Support Documents;
- Continue to Survey the Secured Transaction Laws of Other Jurisdictions; and
- Continue Efforts to Advance Cross-Product Netting and Cross-Product Collateralization.

ACTION PLAN FOR REGULATORS AND LEGISLATORS

- Review Regulatory Requirements to Remove Possible Impediments to Advancements in Risk Management Methodologies;
- Consider Simplification and Modernization of the Laws that Govern Secured Transactions; and
- Ensure that Regulatory Requirements Facilitate the Advancement of Cross-Product Netting and Cross-Product Collateralization.

PART 1

REVIEW OF CURRENT COLLATERAL MANAGEMENT PRACTICES

1.1 ORIGIN AND OBJECTIVES OF THE ISDA 1999 COLLATERAL REVIEW

The ISDA 1999 Collateral Review was developed as a response to increased industry focus on the growing use of collateralization between 1995 and 1998 and the market volatility experienced around the world in 1997 and 1998.

In 1995, several collateral practitioners, led by David Maloy of Warburg Dillon Read and Michael Clarke of J.P. Morgan, created a forum to support the emerging discipline of collateral management, which was, at the time, experiencing tremendous growth as a method of mitigating the credit risk associated with privately negotiated derivatives. This forum evolved to become the current ISDA Collateral Committee. Members of the ISDA Collateral Committee decided in 1996 to develop a set of guidelines on collateral management practices. The guidelines were intended to help communicate the advantages and disadvantages of collateralization, and to assist ISDA's member institutions in developing their collateral management programs. This project resulted in the 1998 publication of the **ISDA Guidelines for Collateral Practitioners** (the "ISDA Collateral Guidelines")[1].

The ISDA Collateral Guidelines present a baseline description of what collateralization is, how it works, and the attendant risks. However, it was intended to be an introductory document and did not take account of the market stress conditions that affected different world markets and asset classes from late 1997 to late 1998. This year-long series of market stresses is key to understanding and improving credit risk management for derivatives for the following:

- the stress conditions affected nearly every market worldwide, with a high degree of correlation across markets;
- the stress was sustained;
- privately negotiated derivatives were more widely used by participants in the affected markets than at any other time in the past[2]; and

[1] Copies of the ISDA Guidelines for Collateral Practitioners are available from ISDA's New York office and at ISDA's web site at www.isda.org

[2] ISDA estimates that at the end of 1993, just prior to the comparatively minor market turbulence experienced in 1994-1995, the notional principal outstanding value of interest rate swaps, currency swaps and interest rate options was US $8.474 trillion. At the end of 1997, outstanding national principal had grown to US $29.035 trillion.

- collateral was much more extensively used in 1997 and 1998 than at any previous time.

The combination of these factors produced a significant increase in credit default events involving collateralized transactions in 1997 and 1998. The market stress during this period focused attention on the need to understand the nature of derivatives credit risk, the role that collateral can play in mitigating that risk, and the effectiveness of existing collateral programs.

In developing the ISDA 1999 Collateral Review, collateral practitioners intended to:

- document the state of collateral management practice as of early 1999;

- analyze the lessons learned from the experiences of collateral management practitioners during the periods of market stress in 1997 and 1998; and

- provide leadership in identifying and implementing possible improvements in market practice.

This paper is based on the views of the collateral practitioners who were involved in this project and subsequently reviewed by ISDA's Collateral Committee. Before addressing the main substance of these topics, it is important to emphasize the primary conclusion drawn from the industry's collective recent experience: collateral provides highly effective protection against credit risk. During 1997 and 1998, many institutions saw their potential credit losses materially reduced because of the existence of effective collateral management programs. Despite this, it remains clear that collateralization is not a substitute for sound credit analysis.

Certainly, current collateral programs are not perfect, and, in addition to providing more information on the effectiveness of collateral, this paper considers improvements that could be made in collateral management practice. It is intended that all of the recommendations in this paper have broad applicability and value. It is, however, acknowledged that not all of them are relevant to all participants in the industry. Each institution that uses collateral must assess the recommendations and determine how they relate to their organization's business objectives and resources.

1.2 ISDA SUPPORT FOR THE DEVELOPMENT OF COLLATERALIZATION IN THE CONTEXT OF PRIVATELY NEGOTIATED DERIVATIVES TRANSACTIONS

In January 1999, ISDA organized a two-day off-site meeting of senior collateral practitioners from a variety of institutions with developed collateral functions. This meeting served as a forum for advanced discussions of the technical and operational experiences of collateral practitioners during 1997 and 1998. Participants in the forum (see Appendix 2 for a list of the participating practitioners) provided detailed insight into their specific experiences, including the completion of an in-depth questionnaire, that provided a good sample for quantitative evaluation of the use of collateral in the privately negotiated derivatives industry. At the meeting, participants were asked to identify the key collateral issues that they faced. These issues were then considered by small working groups which endeavored to define them in detail, describe the potential risks, and make recommendations for addressing each identified challenge. The output of those groups provided the foundation for preparing the analysis and recommendations that appear here. Members of the ISDA Collateral Committee also participated in the comment process, providing valuable input to the final product.

1.3 SURVEY OF COLLATERAL MANAGEMENT PRACTICE

A. Background

To provide the context for the recommendations that follow, it is essential to illustrate how collateral management for privately negotiated derivatives originated, and how important it has become to the privately negotiated derivatives industry. As mentioned above, attendees at the ISDA collateral off-site meeting were asked in advance of that meeting to complete a detailed questionnaire concerning their collateral management practices. Appendix 1 contains a copy of the questionnaire that was distributed to those practitioners. Responses were received from twelve institutions. The responses to the questionnaire provided the basis for the following quantitative analysis of trends in the use of collateral and in collateral management practice. This represents one of the few quantitative profiles of collateralization for derivatives, and while generally indicative based on a sampling of major participants, it is not meant to be an exhaustive survey of current practices. We feel comfortable, however, that the survey results enhance the basis for the conclusions and recommendations presented.

B. Origins and Growth

Collateral has been employed as a credit risk mitigation technique in the privately negotiated derivatives industry since at least the early 1990s. Of the institutions represented at the ISDA collateral off-site meeting, 50% had commenced a formal collateral program prior to 1994, some as early as 1990. The other half of the institutions surveyed commenced their collateral program between 1994 and 1997, and it is known

that a large number of other institutions have commenced collateral programs in the past year.

There has, however, been a significant expansion in the use of collateral since 1994. The expansion has been most apparent in the US, although there has also been considerable expansion in Europe, with increased use of collateral in Asia. This expansion has coincided with the introduction of the ISDA standard form credit support documents for documenting collateral arrangements under New York, English and Japanese law.

To examine the expansion in the use of collateral from a different perspective, it is helpful to look at the number of counterparties with whom transactions are collateralized. Measurement of the number of collateral agreements currently in place provides a more detailed insight into the growth pattern. Among the twelve institutions that responded to the survey, the average number of collateral agreements in place at December 31, 1998 was 523. The actual range varied widely, from 25 to 1400 counterparties. The number of collateral agreements in place tended to correlate with the length of time for which collateral programs had been established. Institutions with longer established programs tended to have a higher number of agreements in place.

Practitioners were asked to forecast the number of collateral agreements to which they expected to be party by the end of 1999. The average expectation was 740, which represents an average 41% annual increase. Several individual institutions expected to increase the number of their collateral agreements by 100% or more. The survey did not systematically collect historical growth patterns from each individual institution, but these growth expectations can be validated against specific evidence provided by some of the institutions surveyed. One institution reported that their collateral agreements doubled in number every year between 1993 and 1998. Others had a similar experience.

C. Collateralized Counterparties

Collateral practitioners were asked to categorize their collateralized counterparties by type. In relation to the institutions surveyed, on average, slightly less than half of all collateral agreements are in place with industry professionals, such as banks and broker dealers. A further 20% are with hedge funds. Another 20% are with corporate clients, who are generally end-users of privately negotiated derivatives rather than dealers or investors. Some 8% of collateral agreements are with central banks and supranational entities. Finally, 7% of agreements were classified as being with “other” counterparties, including private individuals.

There are various reasons for the significant increase in the use of collateral in recent years. Although there are exceptions to the following observations, it is possible to establish a link between counterparty types and the reasons why collateralization has expanded as a risk management technique:

- *Industry Professionals* (45% of collateralized relationships) - Industry professionals generally use collateral among themselves to reduce credit risk and

to improve the liquidity of derivative contracts. Privately negotiated derivatives transactions between professionals comprise the majority of all derivative transactions executed, accounting for as much as 70% of market activity according to some estimates. Professionals are increasingly pricing the cost of credit into their transactions. There are various approaches to this, but it is generally accepted that if a credit exposure is robustly [3] collateralized, then the risk is reduced, and the credit cost should, in turn, be reduced. The prudential reduction of the cost of credit is very important dealers who price credit into the transactions, because they are competing with many institutions that do not charge for credit. Collateral may also reduce the amount of regulatory capital required to support a given exposure. Use of collateral between professionals will also tend to allow a greater volume of business to be executed under a given credit line. This powerful combination - reduced credit and capital costs coupled with increased credit capacity - has greatly increased transaction capacity between professional counterparties.

- *Hedge Funds* (20% of collateralized relationships) - Collateralization in this context must be considered both from the perspective of the bank or broker dealer dealing with the fund and the fund itself. From the perspective of the bank or broker dealer, collateral is a necessary and prudent credit protection. While the size, credit rating and performance record of some funds may enable them to obtain a degree of unsecured credit, their appetite for credit generally far exceeds the level of unsecured credit available and, for the vast majority of funds, delivering collateral may be a pre-requisite to obtaining sufficient credit. However, collateral agreements with hedge funds are quite often bilateral. To a hedge fund, receiving collateral against an in-the-money position is a means of monetizing the unrealized gain in a position while maintaining exposure to the position itself (and hopefully realizing further upside potential).

- *Corporate Clients* (20% of collateralized relationships) - End users of derivatives are increasingly becoming parties to collateral agreements. In dealings with counterparties at the lower end of the credit spectrum, collateral may be required by the bank or broker dealer in order to protect against default risk. At the other extreme, some of the strongest credit quality corporates are now asking their professional counterparties for collateral for exactly the same reason. Generally, collateral agreements with corporates are bilateral, with each party having to post collateral according to its positions and other factors such as credit rating. Use of thresholds linked to the credit rating of each party is an increasing and prudent trend. Derivative end users are typically seeking to hedge an underlying risk of their business but, in doing so, do not wish to add another type of undesired risk - the risk that their derivative provider may default. Therefore,

[3] "Robust" in this context should be taken to mean that a collateral agreement is (a) legally enforceable, (b) monitored in practice so that collateral calls are made accurately and on time, and (c) structured so that the collateral will be of a type that can be liquidated promptly and at a good price. In general, if these criteria are satisfied then a collateral agreement ought to provide effective credit risk protection.

for end user and professional alike, the expansion of collateralization reflects a desire to mitigate unwanted credit risk.

- *Central Banks and Supranational Entities* (8% of collateralized relationships) - Such entities are, in many ways, like corporate end-user customers, although they generally have very high credit ratings. Many such entities are concerned with their credit exposure to industry professionals and use collateral to mitigate counterparty risk. Central banks and supranational entities are often large users of derivatives, building up large positions, often with very long-dated maturities. This size and maturity structure strongly accentuates credit risk for both counterparties to a transaction, and therefore, it is often mutually beneficial to mitigate such credit risk beyond certain threshold levels through the use of collateral.

- *Other* (7% of collateralized relationships) - There are a range of other counterparty types with whom collateral agreements are executed. Institutions with a significant private banking business may collateralize relationships with high net worth individuals. Sometimes private customers use derivatives in their own right, but often transactions are executed for a variety of reasons by family trusts, personal holding companies, or other vehicles. The considerations and mechanisms for collateralization in these cases may mirror those discussed in relation to the hedge fund or corporate clients above.

D. Assets Used as Collateral

The issue of which assets constitutes the "best" collateral is an important one. Cash would appear to be ideal but, in practice, is currently less commonly used. Cash collateral raises questions such as how the cash should be invested, who bears the investment risk, and the acceptable rate of return on the cash. The assets most commonly accepted as collateral today are US Treasury securities, and certain liquid securities issued by US government-sponsored entities such as Fannie Mae, Freddie Mac and Ginnie Mae[4]. All of the collateral practitioners that responded to the survey indicated that they accepted these forms of collateral, as well as (to a lesser extent) US dollar cash.

Around two-thirds of institutions surveyed also accept securities issued by the governments of other major industrialized nations. In this regard, institutions tend to set slightly different acceptance criteria, some indicating that they accepted G-5 government securities, others G-7, and some G-10. Policies in this regard are determined by internal risk considerations and, in some cases, the geographical centers of the institution's business (for example, institutions with extensive European derivatives business tend to accept a broader range of European government securities).

[4] Respectively, the Federal National Mortgage Association (FNMA), the Federal Home Loan Mortgage Corporation (FHLMC), and the Government National Mortgage Association (GNMA).

Although many institutions have made one-off exceptions to accept more unusual types of assets as collateral, only about one-fifth of collateral practitioners surveyed regularly accept other forms of collateral (such as equity securities, corporate bonds, or non-G-10 assets). Interestingly, in discussion, it is apparent that there are two distinct perspectives on broadening the range of assets accepted as collateral. Some institutions prefer to focus on core collateral types (say, G-5 cash and government securities) for reasons of higher credit quality and greater liquidity. Other institutions find themselves under pressure to accept other asset types, perhaps because of the broader markets in which they are actively using collateral, or because certain clients are seeking to lower the cost of collateralization by delivering assets which they naturally hold. The two perspectives are not mutually exclusive, and reflect the different business profiles of the institutions surveyed.

Data provided by the institutions surveyed permit what is, perhaps, the first meaningful estimate of the value of collateral in circulation today. Eleven institutions provided data indicating that, at the time of the survey, they were holding a total of approximately US $49 billion of collateral received from their counterparties, while a further US $33 billion of collateral had been delivered by these institutions to their counterparties. Therefore, as of January, 1999, the total value of collateral in circulation relating to the privately negotiated derivatives business of these institutions was approximately US $82 billion.

These figures allow an estimate to be made of the total value of collateral in circulation across the privately negotiated derivatives industry. Large, established users of collateral reported that they typically had US $10 billion of collateral in circulation (about US $7 billion incoming and US $3 billion outgoing). There were six such institutions among the respondents. Other practitioners with smaller or more recently-established collateral programs typically had about US $4 billion in circulation. There are several institutions that are extensive users of collateral, and many more with smaller programs, that were not included in the survey sample. It is therefore roughly estimated that the gross amount of collateral in circulation at the end of 1998 was in the range of US $175 to US $200 billion[5].

This estimate does not take account of the fact that many institutions actively re-use incoming collateral to meet outgoing collateral requirements through rehypothecation. It is difficult to estimate the effect of rehypothecation. Most institutions surveyed actively practice rehypothecation, but a few US respondents, and most non-US respondent institutions, do not do so. The ability to rehypothecate is determined by: (a) whether it is permitted by the contract between the parties; (b) whether the laws of the countries of the parties also permit it; and (c) whether the parties actually have the operational ability to

[5] Conservatively estimated as 10 extensive collateral users at US $10 billion each (Total $100 billion), plus 25 smaller collateral users at US $4 billion each (Total $100 billion). This totals US $200 billion, which includes the US $82 billion specifically accounted for by the eleven survey respondents. Specific account is not taken of the types of static collateral arrangements that may be associated with special purpose vehicle structures such as asset swap trusts, There are typically fewer operational risks associated with static collateral arrangements, although exposure to risks such as liquidity and issuer risk may remain.

do so. It is likely that across the industry as a whole, much less than the incoming amount of collateral is rehypothecated outwards.

Under general current practice, collateral is not an item reflected on the balance sheet since it is credit support for an asset which is already reflected on the balance sheet. It is worthy of note that the Financial Accounting Standards Board is currently considering a reinterpretation of Financial Accounting Standard 125 ("FAS 125") which, it is understood, may require that, where the right to rehypothecate exists, pledged collateral would appear on the balance sheet of the holder as a receivable from the counterparty. This would have a significant, adverse effect on liquidity ratios and capital calculations. If adopted in the form reported, FAS 125 may cause institutions to reconsider their current rehypothecation programs.

E. Collateral Programs

One area of focus in the survey and in subsequent discussions among collateral practitioners was the shape and size of the collateral programs in existence across the industry. Some programs have grown out of traditional securities and equities margin management functions. Other programs developed specifically for collateralization of derivatives, often as extensions of derivatives middle office or back office functions.

Over time, most collateral practitioners have centralized collateral management for an array of products. This is done mainly for reasons of operational the efficiency, but is also a key factor in risk management control. It minimizes the possibility, in volatile markets, of swap collateral (for example) being returned to a counterparty while a different part of the institution waits for repo collateral to be delivered in. Indeed, an important lesson from the market crises of 1998 was that 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.

Data collected in the survey indicates that nearly three quarters of the institutions 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 manage 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 institutions that achieve genuine cross-collateralization across ISDA-covered and some non-ISDA-covered products.

In addition to the common trend towards centralization of collateral management, many institutions have recognized that the role of the function goes well beyond the execution of collateral calls and settlement of assets. There is clearly a very strong linkage between

collateral and credit risk management, and some institutions have aligned collateral management and credit, either directly or through cross-functional reporting lines. Some institutions 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 begins to recognize 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.

Quality and number of people involved in collateral management were cited as important aspects of a successful collateral program. The skill set required in collateral management is a hybrid of operations, credit, and risk management disciplines, and several institutions add client marketing and quantitative analysis training so that collateral practitioners can actively support the marketing of collateral solutions to clients.

Collateral practitioners were asked about staffing levels in their functions, and how they expect staff numbers to grow. Across the institutions surveyed, the average staffing level at December 31, 1998 was 14 people. Respondents expect this average to grow by 15% to 16 people by the end of 1999. Current staffing levels ranged widely, from 5 to 42, reflecting a number of factors, from the size of collateral program, to a diversity in the duties carried out by the collateral function.

Six institutions surveyed were prepared to disclose the costs associated with their collateral functions. The average amount per institution spent on collateral management was US $5.4 million in 1998. Some larger institutions spend up to US $20 million annually, with several institutions understood to be spending over US $10 million. The average amount spent is expected to rise by 30% to US $7.1 million in 1999. Since this increase is about double the rate at which staffing levels are expected to grow, it indicates a heavy emphasis on technology investment to support collateral management, and highlights the fact that collateral management across products is a very technology-intensive activity[6].

Finally, collateral practitioners were asked to rate the perceived quality of collateral management at the counterparties with which they deal. Only 13% were rated “below average”, with 48% rated “top quality” or “good” while the remainder were rated as “acceptable”. This is encouraging, given that collateral management is a relatively new discipline, where volumes of activity have been growing rapidly.

[6] As an example, every night the collateral management function of one firm collects mark-to-market valuations for 100,000 transactions from 80 different systems around the world. Other institutions with extensive collateral management practices undertake a similar exercise. Clearly, this cannot be done without strong technology support.

F. Collateral Management Experiences in 1997 and 1998

Experiences in 1997 and 1998 were a true test of whether collateralization is an effective credit risk mitigation strategy. Although many collateral programs were only recently formed, the sustained, widespread, extreme market stresses experienced in late 1997 through 1998 focused attention on credit risk, and, therefore, on collateral. As stated above, the view of practitioners is that collateral management documents, processes and systems generally performed very well under severe strain.

Evidence suggests that many institutions avoided or greatly reduced credit losses by having effective collateral arrangements in place. Of eleven institutions that provided data, one stated that no collateralized counterparties were closed out[7] in 1998. Seven institutions closed out between one and nine collateralized counterparties. Three institutions closed out ten or more collateralized counterparties. Of the six institutions that disclosed actual aggregate levels of credit loss that arose from collateralized credit exposures, most reported loss levels below US $10 million in aggregate, with many reporting zero losses after taking account of collateral successfully liquidated.

Institutions were also asked for comments on the factors that resulted in losses[8] where collateralization had been employed. A common response was the precipitous decline in the value of Russian GKO securities in 1998. No institution's haircut on these securities proved sufficient cushion against the 80% value decline they suffered over a short period. Another cause of problems was internal data quality, with some institutions reporting that inadvertently leaving certain transactions out of the collateral calculation caused the wrong amount of collateral to be called. A further cause reported was rapid market movements between a default event and actual liquidation of collateral. There were also circumstances in which a sharp deterioration in the mark to market value of a counterparty's position meant that the value of the collateral held quickly became inadequate to cover the exposure.

1.4 SUMMARY

The combination of results from the Collateral Market Survey and the frank discussion of experience among the meeting participants facilitated the group's ability to quickly identify and agree on the scope of the ISDA 1999 Collateral Review. Consensus charaterized the discussions which included US and European banks and investment banks, as well as a US-based hedge fund. The success of this effort has also set the stage

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[7] We use "close out" here in reference to the termination of a collateralized ISDA master agreement with counterparties where market conditions caused the entity concerned to either default on a collateral delivery, fail to meet a payment obligation, formally declare insolvency, or to undertake to voluntarily unwind positions rapidly and then cease business.

[8] Losses up to any unsecured threshold are obviously to be expected. When one party grants an unsecured threshold to another this is an explicit statement that open (i.e. unsecured) credit risk up to this level is accepted. Collateral is not expected to cover this part of any actual loss.

for cooperation in a achieving the next phase of the project – implementing the recommendations individually or jointly. In addition, the utility of the initial survey results has underscored the need for a larger, more systematic survey that will offer even more insight into current and planned collateral management practice. ISDA, with the support of its members, expects to provide leadership for the next stage of activity.

PART 2

MARKET PRACTICE RECOMMENDATIONS

2.1 INTRODUCTION

The purpose of Part 2 of the ISDA 1999 Collateral Review is to consider certain broad recommendations which should contribute to a reduction of the risks associated with collateral management. The recommendations draw on the experiences of collateral practitioners during the recent periods of extreme volatility and are grouped below under the headings of:

- Credit Analysis and Collateralization;
- Managing the Risks of Collateralization;
- Dispute Resolution;
- Shortening the Collateral Cycle to Reduce Exposures;
- Expansion of Collateral Types;
- Initial Margin;
- Legal and Documentation Issues;
- Cross-Product Netting and Collateralization; and
- Substitutions and Liquidity.

2.2 CREDIT ANALYSIS AND COLLATERALIZATION

Recommendation 1: 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 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.**

Appropriate credit analysis should be the basis for any extension of credit. The nature and depth of such credit analysis should be tailored to the risk profile presented by the combination of counterparty, type of transaction, size of potential future exposure, term of risk, and other relevant factors. Collateral can play a key role in reducing credit risk,

and should be factored into the overall credit analysis. Collateralization is one element of an overall credit risk management program and should never be considered an alternative to performing appropriate credit analysis.

Quantitative components of credit analysis for term derivative products should comprise at least: (a) an assessment of exposure; and (b) an evaluation of any credit enhancement. It is not the purpose of this paper to set out details of general credit risk estimation methods, but they are mentioned here briefly because they provide the context for the collateral-related adjustments referred to below[9]. Exposure assessment should (according to the transaction type) estimate current exposure[10], and some forward-looking measure of the potential future exposure[11]. 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 credit enhancement are important. As collateral (and other credit enhancements[12]) have become increasingly prevalent in the derivatives industry, it has become essential to understand analytically how these features affect the current and future exposure credit measures described above.

Current and future measures of credit exposure should be adjusted for any collateral held in-house[13] which is considered to be liquid and legally enforceable. In measuring future exposure, account should be taken not only of the collateral already held but also of the collateral that the institution expects to hold in the future. Collateral should not be given full (or any) effect in reducing 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 who acts on behalf of the secured party). 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 secured party'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.

Collateral can increase credit exposure in some circumstances. In bilateral collateral agreements, delivery of collateral to a counterparty will increase credit exposure if

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[9] For a detailed discussion of credit risk, see further the ISDA paper "Credit Risk and Regulatory Capital", issued in March, 1998.

[10] Often referred to as the mark-to-market value of a transaction or portfolio.

[11] Many market participants will use Monte Carlo – type simulations to estimate potential future exposure. Others use closed-form analytical solutions. Other, simpler methods may be appropriate for small portfolios.

[12] Examples include elective termination rights (sometimes called break clauses), single swap reset provisions (sometimes called recouponing), third party guarantees and default triggers linked to financial covenants, such as the maintenance of an agreed net asset value (recognizing such triggers can be difficult to monitor), and credit derivatives.

[13] In forward-looking simulations, it is necessary to simulate the anticipated collateral balance at future dates. This should take account of collateral parameters such as unsecured thresholds, the timing of collateral calls, etc.

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.

In performing these quantitative assessments of credit exposure and collateral, both stressed and unstressed scenarios should be evaluated and a broad range of systems and operational testing should be undertaken. Stress testing plays a valuable role in the credit risk management process. It was again emphasized during the last twelve months (particularly in the case of Russian assets held as collateral) 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. When establishing trading relationships with a class of counterparty such as highly leveraged investment institutions, care should be taken to understand the nature of the counterparty and its investment strategy and philosophy. In making credit decisions, institutions should recognize that over-exposure to similar investment strategies across multiple counterparties can create substantial event risk. It is also important for institutions to focus on (and factor into their stress testing programs) the correlation between different market sectors and the impact that this can have on a counterparty's business.

2.3 MANAGING THE RISKS OF COLLATERALIZATION

Recommendation 2: Institutions should review the composition of their collateralized portfolios regularly to assess the risks that collateralization introduces. These collateral risks should be reported to management and actively managed where appropriate.

Collateralization may provide recourse to specific assets, and thereby mitigate credit risk. However, in doing so it introduces a series of other risks which need to be measured and managed. These risks include, but are not limited to:

- ***Legal Risk*** - The risk that collateral rights may not be properly created or perfected due to legal complexity or lack of clarity and the risk that collateral rights that were properly created and perfected may prove void or unenforceable due to a variety of potential legal issues.

- ***Operational Risk*** - The risk that collateral effectiveness is undermined through errors or failures in the monitoring, operations and settlement processes on which it relies. Many factors could cause the collateral protection to be ineffective or less effective than intended, for example, failure to make collateral calls, errors in collateral calculations, failures and delays in the course of rehypothecation and substitutions, transactions missing from the collateral calculations, failures in settlement, and failures in custody arrangements.

- ***Collateral Issuer Risk*** - The risk that the party that issued an asset taken as collateral may default. This will generally be a problem only if it occurs very close to the time that the direct counterparty to the underlying transaction defaults. This risk is mitigated substantially by demanding high quality collateral such as G-10 government debt instruments. This may not be a practical option in the case of certain counterparties, in which case alternative appropriate assets should be taken that reflect an institution's tolerance for risk.

- ***Concentration Risk*** - The risk that collateral of the same (or similar) type may be obtained independently from a variety of counterparties, with the effect that a secured party may be relying to an unexpected extent on one particular collateral issuer, or a group of connected issuers.

- ***Correlation Risk*** - The risk that collateral assets may be highly correlated with the counterparty who provided them as credit protection, meaning that if the counterparty defaults, there is a significant chance that the collateral will be value-impaired or worthless. Another form of correlation risk exists where the counterparty may not be directly connected with the specific collateral assets, but is a dominant participant in the market for the class of assets provided as collateral.

- ***Liquidity Risk*** - The risk that collateral that is otherwise a good credit protection provider may be of a type, or held in such an amount, that in a foreclosure situation, it would be impractical to sell the collateral in a short period of time without adversely moving the market price of the asset.

Recommendation 3: The collateral function should be structured so as to minimize operational risk. Extensive process automation and the implementation of a rigorous control environment are critical. Institutions should give consideration to centralizing the collateral function or developing a series of linked "hub and spoke" operations.

Of the risks described above, operational risk is the most commonly encountered, although legal risk can have the most dramatic effect since the potential exists for entire classes of collateral agreements to be undermined. All of these risks are, however, quite real, and they require specialist management discipline. Consequently, it is critically important that the operational controls surrounding the collateral management function

are strong. Centralization of the collateral function and automation are important contributors to an effective organizational structure.

The organizational structure of the collateral function varies among institutions. There is a strong trend towards centralization of the collateral function within a single entity. In addition to operational efficiency, the principal advantage of this approach is to allow credit risk and collateral management to be assessed across all exposures to a given counterparty. In many cases, centralization may be difficult due to the number of legal entities through which institutions transact. However, there are numerous examples of institutions overcoming these difficulties to establish centralization. Where a global institution centralizes management of the collateral function, it may opt for a "hub and spoke" approach with the establishment of satellite collateral functions in a variety of jurisdictions to provide coverage of time zones and to maintain a collateral-related presence in local markets. Institutions that have centralized the function have tended to locate the function in either the derivatives operations or credit risk management department.

After centralization, automation is the key to an efficient and accurate collateral management function. Despite the fact that during 1998 institutions had to dedicate significant systems resources to the introduction of the single European currency and the millennium date change problem, there has been considerable investment in automation of the collateral function. A number (but certainly not all) of the larger collateral practitioner institutions have a high degree of automation in areas such as valuation Collection,[14] reconciliations and tracking of collateral inventory. Automation enables faster and better communication between the collateral function and other departments and between the collateral function and outside correspondents. Even basic automation, such as the ability to transmit files between internal departments electronically, is of considerable assistance. Automation increases the collateral function's operational capacity. This is of particular importance during periods of increased volatility when the collateral function is subject to increased operational demands. Institutions that have implemented extensive automation of the counterparty relationship and of the collateral management process found themselves better able to deal with periods of volatility than those that were heavily reliant on manual processes. All institutions that use collateral should assess the appropriate level of automation for their scale of business operations.

The majority of institutions surveyed experienced a significant increase in staff in the collateral area over the last five years. Despite this, some institutions (particularly those that are heavily reliant on manual processes) found that they were short of resources during recent periods of volatility. Although it would be impractical for institutions to staff the collateral function permanently with periods of high stress in mind, it is advisable for institutions to develop a contingency plan to provide for an appropriate increase in staff levels during such periods. This is especially important since, during periods of high volatility, the collateral function often becomes the focus of an increased

[14] Most collateral functions do not actually compute valuations; they collect valuations from elsewhere within the institution, validate and distribute them.

level of information requests, given its often unique view of the entire counterparty relationship (see the discussion in Recommendation 4).

As discussed within the ISDA Collateral Guidelines, collateralization crosses functional lines. It will inevitably involve the trading, credit, legal, risk management, and operations areas in multiple entities on a global level. Recent events have brought into focus the need for strong lines of communication among these different areas. Operating procedures for the collateral function should clearly delineate the respective responsibilities of each department in this regard.

Recommendation 4: Institutions should ensure coordination between the collateral, payments and settlement functions.

During recent periods of market turbulence, it became clear that the collateral function was often the best gauge of counterparty liquidity because of its awareness of the counterparty's ability to make free deliveries[15]. The collateral function was also best placed to assess whether exposure to a counterparty should be wound down or enforcement action taken. In a crisis situation, coordination among all areas making and receiving payments to and from a counterparty provides a critical control over credit and settlement risk. Institutions should recognize and take advantage of the collateral area's unique perspective. In a number of recent cases, centralization meant that an institution was better able to take advantage of its knowledge and to react more quickly to market events. Given the correlation between the functions, it is helpful to ensure easy, rapid communication between the collateral, payments and settlements areas, either through physical proximity or through the use of technology.

Recommendation 5: Institutions should recognize the importance of the collateral function and maintain appropriate levels of suitably qualified staff.

Institutions should recognize the multidisciplinary nature and critical importance of the collateral function and should ensure that the function is staffed by sufficient numbers of appropriately trained professionals. Cross training in areas such as credit risk management and the legal foundations of collateralization is important, as is the provision of ongoing training for all levels of staff.

Recommendation 6: Institutions should emphasize the need to provide the collateral function with quality data to enable appropriate and timely decision making.

Recent periods of high volatility also highlighted the importance of information quality. In times of crisis, the existence of a communication network that enables accurate and

[15] "Free delivery" is a term used to mean that securities are delivered from one party to the other, without the delivery being contingent on a payment of cash in the other direction. Most collateral deliveries and returns are made "free" of payment. The opposite of "free delivery" is "delivery-versus-payment" or "DVP" settlement, which is rarely used in the collateral market, for the obvious reason that the collateral delivery is typically occurring to offset an exposure that has already arisen through the underlying derivative contracts.

essential information to be transferred quickly is invaluable to the decision making process of collateral practitioners. The potential impact of market rumors (which can, as recent events emphasized, have a spiraling impact on liquidity) can be more effectively counteracted if lines of communication are clear and the importance of the transmission of only reliable information is emphasized.

2.4 DISPUTE RESOLUTION

During the recent periods of market volatility, the incidence of disputes increased considerably for all types of privately negotiated derivatives transactions and, in particular, for credit derivatives transactions. Practitioners suggest that the majority of recent collateral-related disputes centered on issues of:

(a) Pricing: Disputes often concern underlying transactions as well as collateral. In complex transactions (particularly those with wide bid-offer spreads), disputes often arose around issues of price availability, the degree of spread widening and price objectivity. The absence of a standard approach to valuations where an objective price was not available increased the incidence of disputes. Disputes also arose as to how "real time" a price should be. This issue was particularly prevalent in more complex transactions and in relation to faster moving markets.

(b) Timing of valuations: Even in the case of more standard transactions, disputes arose over issues such as the correct end of day for the purpose of valuations (should it, for example, have been the closing in London or the closing in New York?).

(c) The deal population of portfolios: Disputes were often exacerbated by infrequency of trade matching between counterparties which gave rise to disputes over portfolio population. Resolving these disputes was often hampered by a lack of automation of the reconciliation process.

(d) Deviation from established procedures and market practices: Disputes frequently arose from the confusion caused when counterparties deviated from documented or prevailing operating procedures. For example, emerging market bonds held as collateral are typically priced as of the close of business on the previous day. Despite this accepted market practice, during recent periods of market stress, some participants attempted to move unilaterally to an intra-day valuation, resulting in disputes.

Tolerance for portfolio population differences and pricing discrepancies appears to be affected by volatility. During recent periods of market stress, there were several examples of disputes arising over issues and amounts that might not have been seen as a cause for dispute in a more predictable environment. The resolution of disputes is a particularly important issue; the more common effect of disputes is that collateral goes undelivered, giving rise to unsecured exposure. The more quickly a dispute can be resolved, the more effectively such exposure can be managed.

Under normal market conditions, disputes tend to be resolved via informal negotiations between counterparties. However, during periods of stress, informal dispute resolution procedures can break down since counterparties tend to require strict compliance with collateral agreements and formal dispute resolution mechanisms.

Recommendation 7: Institutions should define and implement detailed and, where practicable, automated reconciliation procedures.

As stated above, valuations can be a major source of disputes. Differences between counterparties over the deal population of a portfolio is a major source of valuation-related disputes. In order to reduce the likelihood of future disputes as to the population of portfolios, it would be helpful for counterparties to conduct a full, trade-by-trade reconciliation[16] before a collateral agreement is executed and frequently[17] thereafter.

It is acknowledged that these improvements will not prevent the occurrence of all reconciliation disputes (particularly for large and active portfolios or in situations where one institution regards a trade as the whole transaction and references it accordingly, while the counterparty, seeing it as only one leg of a larger transaction, issues different or multiple references). It is suggested that institutions should aim initially to match deal populations and valuations to eliminate material differences. Over time, with more active (and preferably automated) matching of trade confirmations and economic terms, the elimination of all differences should be an achievable goal.

Recommendation 8: ISDA and its members should establish guidelines for informal dispute resolution practice.

Each of the standard ISDA credit support documents contains formal and highly structured dispute resolution procedures. Experiences of collateral practitioners over the last few years have indicated that those procedures may have sacrificed practicality for formal clarity. Many institutions have developed practices to resolve differences between them without resorting to these formal procedures (many find that close consideration of the terms of the confirmation of the transaction in question, for example, is of assistance), but there are currently no industry guidelines in this regard. It would be helpful for the industry to provide guidelines for more practical dispute resolution alternatives. The

[16] This would involve the matching of key fields on transaction confirmations (such as trade date, notional amount and settlement date) and attributing a reference number so that transactions can be tracked throughout their lifetimes. Ideally, transaction matching should begin as early as possible in the transaction process and, for this reason it would be advisable for the confirmations function to have responsibility for allocating reference numbers and feeding those through to the collateral and other relevant functions. It is very helpful if the two parties to a trade can cross-reference their internal reference numbers, which implies an ability to store the other party's reference. An even better alternative, perhaps possible with modern technology, might be a universal system of providing a unique identifying number for every transaction in the market.

[17] It is recommended that when an automated reconciliation process exists between industry participants, reconciliation should be undertaken daily. In the absence of appropriate automation, counterparties should aim to achieve monthly reconciliations.

guidelines should include a methodology that prevents lengthy disputes from arising over smaller amounts by, for example, suggesting that settlement of disputes over smaller differences be achieved by apportioning disputed amounts equally between the parties. The guidelines might also suggest the establishment of a series of monetary tolerance bands and that the formality of dispute resolution procedures should be progressively increased in relation to the size of the amount in dispute. Importantly, counterparties must be willing to deliver any undisputed amounts promptly. It is likely that future guidelines would include a defined concept of "undisputed amount" to enable the speedier identification and transfer of such amounts.

By executing a credit support document, parties agree to be legally bound to perform all obligations under that agreement (including all calculations and valuations) in good faith and in a commercially reasonable manner. Some parties strengthen this concept by providing in the variable terms that the determinations of the Valuation Agent[18] are binding in the absence of manifest error. Parties should take this standard of performance into account both in performing calculations and prior to disputing them. As a matter of market practice, parties should not dispute collateral calls unless they have performed the calculations required to substantiate the dispute.

Recommendation 9: Institutions should apply the terms of their collateral agreements consistently in order to ensure greater predictability.

Execution of a credit support document creates rights and obligations. Behavior that is inconsistent with those rights and obligations (such as the waiver of collateral calls) adds a further level of risk to the counterparty relationship by detracting from the predictability of the collateralized relationship.

Having established a legal agreement and operational procedures with a particular counterparty, parties should adhere to that agreement and those procedures consistently. During the recent periods of volatility, a number of disputes arose because one party insisted on strict adherence to a written procedure which, in the past, the parties had not typically followed. In a recent example, additional stress was generated when an institution, having regularly waived smaller collateral calls over a period, sensed that a counterparty was in distress and relied on the provisions of a credit support document to make a single substantial collateral call, threatening the counterparty's liquidity. It would have been far preferable for the institution to adhere to the terms of the credit support document throughout and conduct an orderly deleveraging over the same period.

2.5 SHORTENING THE COLLATERAL CYCLE TO REDUCE EXPOSURES

Two particular time frames are most relevant in this regard: first, the delay between the creation of an exposure and the receipt of collateral to cover that exposure; and secondly,

[18] In the standard form ISDA credit support documents, the Valuation Agent will be the party calling for the transfer of collateral from its counterparty.

the delay between closing out a transaction and liquidating the collateral on hand in the event of a counterparty default. The standard form ISDA credit support documents normally work on the basis that valuations are performed at the close on date D. The resulting collateral call will be made on D+1 and, depending upon timing, due for settlement on D+2 or D+3 (and in some cases later). Practical constraints mean that failure to deliver probably will not be detected until the morning of the day after the settlement day. It will probably then take several hours to determine whether the settlement failure is an operational problem or a potential credit event. If a failure is believed to be a credit event, a default notice must then be issued and, from that point, a further forty-eight hours is permitted to cure the failure to deliver before collateral may be liquidated. In volatile markets, such delays can create substantial risk.

By contrast, for other product types (e.g. the US dollar repo market) the collateral delivery notice and liquidation periods are considerably shorter, typically providing the ability to liquidate the collateral position within twenty-four hours of default.

Recommendation 10: ISDA and its members should consider revising credit support documents to include the option of a shorter time cycle for valuation, delivery and liquidation of collateral. Parties should not be required to use these shorter cycle documents, but some pairs of counterparties may elect to use them in order to further minimize risk. Industry professionals in particular should consider the risk and capital reduction benefits of such an election.

It is noted that compliance with shorter time cycles can prove most difficult when it is most desirable; during periods of extreme volatility. Counterparties should take this into account when agreeing to particular time cycles.

While it may not be appropriate to reduce the collateral time cycle for all counterparties (for example, for end users, it may be neither necessary nor appropriate), it would appear beneficial from overall market risk and liquidity perspectives if collateral agreements between professional participants were restructured on a shorter time cycle. This reduced risk interval should ensure that exposures between professionals are minimized. Rather than attempting to define explicitly the term “professional”, the shorter time-cycle documentation option should be available for any pair of counterparties to use at their discretion.

Analysis of advanced credit models which take the effects of collateral into account suggests that if collateral calls are made on a daily basis, and there is a high degree of certainty as to the legal enforceability of collateral, then one of the biggest contributors to projected future credit exposure derives from the so-called “cure period” - the period between calculating the collateral requirement and liquidating collateral after an Event of Default. Daily collateral calls, in combination with documentation that incorporates a shortened time cycle (as described above) would offer collateral users who are prepared to support the high operational burden of such a regime with the best approach to reducing credit risk further.

Recommendation 11: Institutions should consider drafting into their collateral agreements a provision that, when a collateral delivery failure occurs and cannot be corrected immediately, cash will be delivered and accepted as an interim fallback for the collateral of choice. This would reduce time cycles and preserve the liquidity of parties that are expecting to receive collateral.

In the vast majority of cases, it is reasonable to assume that collateral will be delivered as planned. However, unlike the repo market (where a late payment incurs interest from the due date until the date of payment) under the standard form ISDA credit support documents, a failure to deliver or return collateral when due constitutes an Event of Default. As such, greater thought should be given to the means by which failures can be averted or cured. To the extent that a particular instrument is not delivered within a given time frame, counterparties should agree to accept cash denominated in US dollars, Japanese yen and euro instead. The corollary of this is that the delivering party should be prepared to make good a collateral delivery failure by arranging delivery of cash instead. This approach would be preferable to allowing a failure to occur and then correcting it a day or more later. Given that cash can be delivered more quickly than any other form of collateral, a fallback to cash would reduce potential delays as well as counterparty exposure. It would also promote liquidity. This suggestion is likely to be more widely accepted if industry standard rates of interest for cash pledged as collateral could be agreed. It may be appropriate to agree industry standard rates that vary by reference to the nature and credit rating of the counterparty in question.

The delivery of cash as a fallback should be considered both in the context of a delivery to cover a collateral call and in the context of a return of collateral by a collateral taker to a collateral giver of collateral. If cash were delivered as a fallback in the former context, the delivering party should have the option either to deliver the securities later and to reclaim the cash, or to leave the cash in situ. A failure to deliver securities in the context of a return of collateral to a collateral giver may have significant consequences for the collateral giver, who may, in turn, be obliged to deliver the securities in question to a third party. In such circumstances, the collateral giver would be obliged to buy covering securities of the same type to meet its contractual obligations to the third party. This issue is more acute if the security in question is traded at an inflated price, as in the case of "special" securities in the US Treasury market. In these cases, the party having failed to return the relevant securities should cover the failure with cash, thus preserving the liquidity of the collateral giver. The collateral giver should then be permitted to make a claim for costs incurred in buying-in the covering securities.

2.5 EXPANSION OF COLLATERAL TYPES

The pool of assets accepted as collateral has not expanded in step with the increase in the number of products subject to collateral agreements, or the geographic broadening of the counterparties with which collateral is employed. As noted above, the pool currently tends to be limited to US Treasury securities and certain US agency securities. Liquidity risk may be exacerbated by the tendency of institutions to require these highly liquid

instruments, resulting in a relative scarcity and a relatively high funding cost.[19] Certain counterparties (such as non-US banks and some highly leveraged investment funds) are not natural holders of these instruments. Requiring them to hold such instruments solely for the purpose of their collateral program subjects them to additional operational risk and expense. These counterparties are, however, frequently, holders of other securities that are highly rated, such as OECD debt instruments and highly liquid equities.

Recommendation 12: Institutions should continue to consider the use of a wider range of assets as collateral, subject to normal commercial considerations such as credit quality, liquidity, correlation to the counterparty, ease of custody and handling, and ease of pricing. Greater consideration should be given to use of cash as potential collateral with additional consideration being given to problems of determining rates of interest and appropriate payment procedures. ISDA and its members should provide a forum to discuss the issues impacting expanding collateral types as well as the introduction of a reference data service to collect market pricing of benchmark assets widely used as collateral.

It is acknowledged that the normal criteria for "good" collateral should not be relaxed to any significant degree. No user of collateral would prefer easier or cheaper funding at the expense of discovering that the pledged collateral is ineffective as credit protection. Rather, what is suggested is the application of normal acceptance criteria to a wider range of instruments, which, for various reasons, may not have been actively considered in the past. In addition to assessing potential assets for use as collateral, widening of the pool of acceptable collateral assets would require institutions to undertake systems modifications, as well as research into the establishment of necessary clearing and custody accounts, sources of funding, etc.

More institutions should consider widening the pool of acceptable collateral to include:

- US Federal agency securities (such as Fannie Mae, Freddie Mac and Ginnie Mae[20]), OECD Government securities and supranational debt (such as securities issued by the World Bank, European Bank for Reconstruction and Development etc.); and

- High quality corporate debt (such as AAA-rated bonds and Al/P1 commercial paper)

Although there does not currently appear to be widespread market demand in this regard (and the implications of such expansion are not considered here), industry participants should perhaps also give consideration to the implications of accepting equities listed on major exchanges which are also components of prime indices (such as the S&P500,

[19] The funding cost of a collateral asset is the cost of sourcing the asset, less the return generated from holding the asset.

[20] As noted above, some institutions already accept Fannie Mae, Freddie Mac and Ginnie Mae securities as collateral.

FTSE100, DAX30, CAC40 or Nikkei 225). It should be noted that expansion of the pool of acceptable collateral must be weighed against the goal of shortening the collateral cycle. The effect of settlement and close-out periods associated with certain assets should be taken into account before such assets are accepted as collateral.

In addition to reviewing acceptance of a wider range of securities as collateral, industry participants should consider enhanced use of cash collateral through potential standardization and simplification of certain terms. As suggested above, agreed provisions for the calculation of interest on cash collateral would be of considerable assistance. It could be agreed that market participants will be given the option of choosing to provide that interest on cash collateral will accrue on an actual/365 basis, at the overnight interest rate index appropriate to the currency of the cash collateral. Similarly, an option could be proposed that simple interest be earned from and including the day on which the cash collateral is delivered, up to but not including the day on which cash collateral is returned, such interest being paid together with the returned cash.

Although it is recognized that cash may often be more expensive to finance than securities, it is important for the further development of collateralization that cash be more widely accepted as collateral. The current lack of agreed industry standards in this regard acts as an impediment to wider acceptance.

It is also noted that regulators in certain jurisdictions may subject banks accepting cash as collateral to additional liquidity requirements. Regulators should be informed as to the impact of this type of requirement on the use of cash as collateral and should be encouraged to amend their requirements accordingly. Regulatory inconsistency can also present a significant obstacle to collateralization. Unhelpful tax and accounting treatments are significant issues, and the inconsistent capital treatment afforded to collateral by regulators increases cost for regulated institutions, thus providing a disincentive to mitigate credit risk through collateral. There is a need for regulators to review their approach to the regulatory capital treatment of collateral generally. Regulators should be encouraged to allow regulatory capital offsets in respect of a wider range of asset classes, subject to the application of prudent valuation adjustments, the existence of legally robust collateral arrangements, and the demonstration of appropriate internal controls.

It is suggested that ISDA (possibly in conjunction with other industry associations) might provide a collateral asset pricing page, to be delivered via one or more of the major financial information providers. This pricing page could display a daily average price quotation for a series of commonly-used collateral assets, based on prices obtained from a panel of institutions that are active market makers in the asset in question. Counterparties could be given the option to elect to reference this collateral pricing page in their documentation, not only as an impartial pricing source, but also perhaps as a baseline list of eligible collateral assets. Parties would, of course, be free to add to or subtract from the list as appropriate to their business objectives. In addition to promoting use of a broader range of collateral, this service would help reduce the burden of pricing common

collateral assets, and assist in reducing potential sources of operational risk and disputes in collateral management.

Recommendation 13: Institutions should review their internal methodologies used to determine "haircuts" for collateral assets, and should ensure that appropriate volatility measures are considered over the appropriate timeframe when setting haircut levels.

The "haircut" applied to an asset accepted as collateral reduces the value attributed to that asset for collateralization purposes. The haircut reflects the potential price volatility of the asset, estimated over a particular potential liquidation period. This period is essentially the cure period (mentioned above).

The haircut is a function of the volatility of the price of the asset, and *not* a function of the credit quality or the nature of the counterparty. It is therefore unsurprising that, in practice, a high degree of convergence exists among institutions with regard to the appropriate haircuts for certain commonly used collateral assets.

It is suggested that institutions should review their haircut methodologies to ensure an appropriate base of volatility observations, and the use of an appropriate timeframe for estimating the potential change in value that can occur over the cure period. While the basic methodology for haircuts should incorporate these factors, it is important that pairs of counterparties be free to elect any appropriate haircuts in the terms of their specific collateral agreement. This allows them to take account of uncommon collateral asset types, unusually long or short cure periods, any degree of correlation between the collateral assets and the counterparty, a desire for periodic reset of haircuts according to changes in market volatility, and other circumstances.

2.7 INITIAL MARGIN

Collateral has long been employed with both highly-rated and lower-rated counterparties. In many cases in the past, it was common practice to require up-front margin from counterparties at the lower end of the rating spectrum. However, in recent years, there has developed a trend towards not requiring initial margin, especially in the highly competitive market for leveraged funds clients. In discussion with collateral practitioners, it appears that the rationale for this was that daily collateral calls confined unsecured exposure within acceptable limits.

Recent stress events have shown that both derivative positions and collateral can change in value very quickly. Significant levels of unsecured exposure can occur in the day or two before additional collateral can be called. Many institutions, even those that did enjoy some level of initial margin, report that actual movements during 1997 and 1998 occasionally penetrated the protection levels afforded by haircuts on collateral values and initial margin requirements on exposures.

It is worth pointing out here that initial margin and haircuts actually represent the same concept applied differently. Initial margin increases the amount that collateral must cover. A haircut deflates the amount of value that is ascribed to the collateral. Both serve to provide some cushion of extra collateral value beyond the actual mark-to-market value of the exposure. The reason these two sources of protection are normally separated is partly historical, and partly for simplicity: initial margin will be driven by the volatility of the value of the derivative position, while haircuts will be driven by the price volatility of the collateral assets[21].

It is important to note that collateralization is not intended to eliminate all exposure. Indeed, to do so with certainty is impossible. However, a sufficiently high over-collateralization can produce a result that tends towards eliminating exposure, although there is no guarantee that exposure will not exceed any level of collateral. In addition to this theoretical impossibility, the cost of massive over-collateralization would be uneconomic. In practice, it is necessary to strike a balance between protection against large, rapid valuation changes and the commercial realities that limit the amount of collateral that counterparties are willing or able to post.

Recommendation 14: Institutions should each develop clear internal policies for determining the circumstances in which initial margin should be required, and a methodology for setting the required level of initial margin. Insistence on initial margin should be consistent with an institution's risk appetite and the commercial situation in question.

Clearly, since institutions calculate the levels of their exposures differently, decisions to require initial margin and on the level at which it should be set are decisions for individual institutions. It is, however, anticipated that initial margin will become more commonly used in future. Each institution should develop and ensure that relevant staff are familiar with appropriate policies concerning initial margin. Those policies should then be applied consistently.

Value-at-risk methodologies represent a potentially attractive approach to developing a more efficient initial margin paradigm. Further research in this direction is recommended. It is recognized, however, that current models have limitations and that approaches to the calculation of VaR differ considerably across institutions. These factors may hinder developments in this regard.

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[21] Conceptually, neither initial margin nor haircuts are credit terms. It is curious to note, however, that it is common in the privately negotiated derivatives market to set initial margin levels (including zero initial margin) according to the credit quality of the counterparty, whereas haircuts on collateral assets are almost universally applied, and at a consistent level irrespective of credit quality. Yet, as explained above, initial margin and haircuts really serve the same purpose, which is to create some degree of structural over-collateralization.

2.8 LEGAL AND DOCUMENTATION ISSUES

A number of the legal risks associated with collateral can be addressed by means of appropriate documentation. A sizeable majority of privately negotiated derivatives business is executed under ISDA documentation[22]. This means that the transactions are executed under an ISDA Master Agreement, confirmed by means of the appropriate ISDA Confirmation and, to the extent that transactions are secured, collateralized under one of the standard form ISDA credit support documents. Effective close-out netting arrangements, such as those contained in the ISDA documentation, are an essential element of credit risk management, and a foundation for an effective collateralized relationship.[23] The importance of executing the ISDA Master Agreement (or a document that provides an equivalent basis for close-out netting) and the relevant credit support document should again be emphasized, as should the importance of confirming individual transactions in writing. Although documentation backlogs have decreased as institutions increasingly develop dedicated documentation functions, a number of institutions continue to note delays in completing the documentation process.

As pointed out by the Bank for International Settlements[24], the primary legal risk faced by collateral practitioners is that of enforceability of a collateral agreement. There are also the broader concerns of enforceability of derivatives transactions in some jurisdictions and against certain types of counterparties. A number of jurisdictions remain unreceptive towards the concept of close-out netting. Several legal systems do not recognize the title transfer approach to collateralization, in those jurisdictions the formalities associated with the collateralization process may be more complex and the rehypothecation process is sometimes prejudiced due to legal constraints. The complexity of local procedures, cross border conflicts of law issues, and significant uncertainty of ultimate enforcement of collateral agreements in some jurisdictions lead to material levels of legal risk in the use of collateral in those jurisdictions. As discussed further below, ISDA is undertaking on behalf of its members a multi-jurisdictional survey that addresses a number of these issues. That survey is updated and expanded as appropriate.

There are presently four ISDA Standard forms of credit support document in use in the privately negotiated derivatives industry:

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[22] According to the Group of Thirty report in 1993, 74% of all responding dealers most frequently used an ISDA Master Agreement with little or no modification and the next frequently used form of documentation was an ISDA Master Agreement with major modifications (Derivative: Practices and Principles – Working Paper of the Enforceability Subcommittee).

[23] Technically, a collateral agreement can be employed in a jurisdiction where close-out netting is uncertain. Collateral requirements would be amended so that one or both parties deliver collateral against the gross, rather than net, exposure to the other. This can mean that both parties have collateral posted to the other at the same time. This is inherently inefficient, and in fact is very rare in practice – usually, collateral is only employed in jurisdictions where close out netting is enforceable.

[24] See the BIS report, dated September 1998, OTC Derivatives: Settlement Procedures and Counterparty Risk Management page 32.

- the Credit Support Annex subject to New York Law;
- the Credit Support Annex subject to English Law;
- the Credit Support Deed subject to English Law; and
- the Credit Support Annex subject to Japanese Law.

Each of these forms is drafted as an annex to the Schedule to an ISDA Master Agreement, except for the Credit Support Deed subject to English Law, which is a stand-alone document for particular reasons of English law and is, in terms of form and content, otherwise very similar to the other credit support documents.

Among other factors, the choice of credit support document may be driven by:

- choice of governing law;
- the nature and location of the collateral in question;
- whether it is intended that collateral is to be rehypothecated;
- the enforceability of a particular credit support document in a particular jurisdiction; and
- tax considerations.

While these are extremely important considerations, it should be recognized that a proliferation of standard-form documents can create confusion.

Recommendation 15: Institutions should ensure that collateral agreements address the possibility of credit quality changes that alter the relative risk between the two parties, and establish appropriate thresholds and other parameters which vary in response to key drivers (such as credit ratings, net asset value levels, or other appropriate factors). The possible liquidity implications of unilateral credit support documents should be taken into account.

There continues to be a tendency on the part of institutions to use unilateral (or one-way) credit support documents[25] with certain counterparties. There are clearly instances where the creditworthiness of a counterparty may justify the use of a unilateral credit support document, and unilateral credit support documents will remain a feature of the industry. It is suggested by some that the use of unilateral credit support documents can impose a liquidity squeeze on smaller counterparties that may be called for collateral but cannot, in turn, call their counterparties for the same.

It is also observed that ISDA Master Agreements and each of the standard form ISDA credit support documents are intended to provide a long-term framework for the relationship between parties. Many practitioners already build recognition of this fact

[25] Unilateral credit support documents (which are also called one-way credit support documents) permit an institution to call its counterparty for collateral in the event that the counterparty's position is out of the money, but do not provide for collateral to be returned or for the institution to deliver collateral to its counterparty in the event that the institution's position goes out of the money.

into the drafting of their credit support documents. This is to be encouraged. Building in flexible collateral parameters that respond over time to changes in circumstances of the parties should provide for lower document maintenance costs and a greater degree of predictability for both parties.

Recommendation 16: ISDA and its members should consider simplification of the documentation structure and execution process for the ISDA Master Agreements and ISDA standard form credit support documents.

Specific suggestions for more detailed consideration are:

- Extensive revision and consolidation of the existing credit support documents so as to create a single document which has a common mechanical core, supplemented with elective components that contain specific legal terms appropriate to each mode of taking security over collateral assets;

- A move towards a protocol-based[26] method of establishing collateral agreements that would reduce the level of bilateral negotiation currently involved in the establishment of a collateralized relationship. This would mean that parties would individually subscribe to a basic collateral protocol, which sets out the essential mechanics of a collateral agreement between any two subscribers. No agreement would exist between the parties, however, until each bilateral pair had signed a short, specific agreement that sets out the exact credit and collateral terms between them, and activates the protocol mechanism.

- Implementation of an electronic (internet-based) derivative documentation interchange. This would provide a forum for exchanging draft and final version of ISDA documents, potentially coupled with a common document repository.

Recommendation 17: ISDA and its members should consider reduction of the variable or elective elements of the standard form ISDA credit support documents.

Each of the standard form ISDA credit support documents contains an Election and Variables section in which the parties may modify the other provisions of the credit support document or make certain elections. Some degree of flexibility is clearly essential given the variety of counterparties with which collateralized business is conducted. However, it was noted by many in discussions that the standard form ISDA credit support documents currently allow for too many variables and that this complicates the collateral management process and promotes unnecessary inconsistency across the market. These participants urged the view that greater standardization may also serve to reduce legal risk, streamline the documentation process and facilitate the pledging of collateral. It is proposed that ISDA consider the practicalities of reducing the scope for variation except in relation to key operational provisions such as the Minimum Transfer

[26] This is a similar concept to the subscription approach used by ISDA for its EMU Protocol.

Amount, Independent Amount, Delivery Amount and Eligible Collateral provisions. Detailed follow-up discussions are needed to consider these suggestions.

Recommendation 18: Institutions should understand the enforceability of their collateral agreement in different jurisdictions.

A number of institutions have obtained legal opinions concerning the enforceability of collateral in a significant number of jurisdictions. As was discussed in the ISDA Collateral Guidelines, these surveys typically consider the insolvency of a counterparty organized in the relevant jurisdiction, creation and perfection issues, questions regarding the local jurisdiction as the location of collateral, rehypothecation issues and various conflict of laws questions, including the enforceability locally of foreign law pledge and/or title transfer documents. As mentioned above, ISDA is undertaking a similar project in a number of jurisdictions[27] as to the enforceability of the New York Annex, the English Deed and the English Annex. Given the industry-wide importance of this issue, practitioners have suggested that future endeavors in this regard be centralized through ISDA and an ISDA-sponsored enforceability matrix distributed to the wider market.

Notwithstanding industry initiatives such as those mentioned above, senior management of collateral users should ensure that the extent of their collateral program is consistent with the level and breadth of understanding of jurisdiction-specific collateral enforcement issues.

Recommendation 19: Institutions, ISDA and industry supervisors should promote harmonization of the laws and regulations that impact the collateral function.

Participants and others should continue to express support for the simplification of bankruptcy laws and common regulatory (and especially regulatory capital) treatment of secured transactions. At present, the conflict of laws rules of most legal systems look primarily to the laws of three jurisdictions in relation to collateral arrangements. The first, and the least controversial, is the jurisdiction of the governing law of the collateral arrangement. The second is the law of the jurisdiction of the location of collateral (the lex situs). It is the lex situs that determines what steps are necessary to perfect a validly created pledge/security interest. The lex situs is also important in a pre-bankruptcy enforcement of a collateral arrangement. The third jurisdiction, and the most important, when enforcing a collateral arrangement against a counterparty in bankruptcy, is the jurisdiction of the location of the bankrupt party. The law of the jurisdiction of the location of a party (meaning, alternatively, where the party is registered, where it has its principal place of business, or where most of its assets are located) decides whether a validly created and perfected pledge/security interest will be recognized, whether enforcement may be delayed, and whether set-off (which underpins all title transfer collateral arrangements) will be enforceable.

[27] Belgium, Cayman Islands, England, France Germany, Hong Kong, Indonesia, Japan, Luxembourg, Malaysia, Singapore, South Korea, Switzerland, Taiwan, Thailand, and the United States (New York).

Clearly, this is a simplified statement of the legal analysis, but it would be of particular assistance if jurisdictions were to establish applicable rules in a simple, unambiguous manner and apply them consistently. More widespread recognition of title transfer forms of collateral would also be extremely helpful. These measures would provide parties with much needed certainty, and significantly reduce legal risk. Industry participants are also aware that there is a lesser acceptance of collateral as a risk management tool in a number of jurisdictions. Educational efforts should continue to be made in respect of those jurisdictions.

ISDA has already established a project to consider means of addressing inconsistencies in the laws of member states of the European Union concerning the taking of security, the ability to rehypothecate collateral and related issues. It is envisioned that this project will be extended to other jurisdictions in due course.

2.9 CROSS-PRODUCT NETTING AND CROSS-PRODUCT COLLATERALIZATION

There is a desire in the financial services industry to progress towards collateralizing entire counterparty relationships rather than collateralizing on a product-by-product or transaction-by-transaction basis. The view of a number of ISDA's members is that, in addition to offering greater credit protection, cross-product collateralization promotes greater operational efficiency and better allocation of resources by enabling the management of currently separate collateral pools to be centralized.

Local legal and regulatory requirements often frustrate the development of extensive cross-netting and cross-collateralization mechanisms. In a number of jurisdictions (such as the United States) where the ability to net is subject to the satisfaction of certain statutory definitions, cross-product netting and collateralization is impractical and often impossible. Certain regulatory and legal regimes have also hindered attempts by some institutions to create contractual structures between entities in a group in order to replicate cross-collateralization. These obstacles unnecessarily prevent risk reduction steps that institutions should be permitted to take.

The position is further complicated by the proliferation of product-specific, standard form master agreements in the market place. It remains open to counterparties to enter into privately negotiated transactions under a variety of different types of documentation; in the FX markets, the IFEMA, ICOM and FEOMA master agreements are widely used and are combined with proprietary margin supplements to collateralize foreign exchange trading. The repurchase markets operate largely under the PSA/ISMA Master Repurchase Agreement. Each of these agreements contains a netting mechanism that will not admit transactions documented under other master agreements. To overcome this, a growing number of larger counterparties have been structuring their derivatives, foreign exchange and repurchase transactions under the non-product specific ISDA documentation structure.

Even in jurisdictions that recognize the value of netting, there is a tendency to allow regulatory capital relief only in relation to the netting of on-balance-sheet assets (that is to say, in respect of the netting of one on-balance-sheet position against another on-balance-sheet position). It would encourage efforts to promote cross-product netting and cross-product collateralization and motivate better risk management if regulators would give regulatory capital relief in respect of on- versus off-balance-sheet netting (the netting of an on-balance-sheet position against an off-balance-sheet position) where legally robust documentation is in place. In recognizing on- versus-off-balance-sheet netting, regulators should not impose unnecessary maturity and currency matching requirements.

Recommendation 20: ISDA and its members should develop documentation that would permit the cross-product netting and cross-product collateralization of a broad range of products.

ISDA's Board of Directors has approved consideration of a means of bringing product specific documentation within a single netting framework whether through the development of a master-master agreement structure or otherwise. It is intended that this effort will enable cross-netting and cross-collateralization of exposures, not only among privately negotiated derivatives products, but also between privately negotiated derivatives products and foreign exchange products, repurchase and reverse repurchase agreements, as well as debt and equity securities cash transactions.

Industry associations and others are encouraged to cooperate to achieve the widest practicable cross-netting and cross-collateralization solution, and to remove any documentary impediments to the reduction of risk for all institutions.

Recommendation 21: Institutions should identify the systems and operational enhancements necessary to implement broader cross-product netting and cross-product collateralization. ISDA and its members should provide general guidance on implementation issues.

It is acknowledged that institutions that do not already have in a place an operational framework that would support cross-product netting and collateralization would be faced with a sizeable task in implementing such processes. It is necessary for institutions to consider well in advance the systems and procedural enhancements that would be needed. It is proposed that ISDA produce an outline of issues that need to be considered in implementing cross-collateralized relationships.

2.10 SUBSTITUTIONS AND LIQUIDITY

The substitution mechanism in the standard form ISDA credit support documents provides for a one-day delay between the delivery by the collateral giver of the substitute credit support to the collateral taker and transfer of the collateral being substituted back to the collateral giver. Note that in this context the word substitution is used in a broad sense to include the technical concepts of substitution in the New York law Credit Support Annex and exchange in the English law Credit Support Annex. Apart from the

concentrated exposure concern, since the collateral taker will be holding both the original collateral and the substitute collateral during the delay, the delay presents potential liquidity problems to the party requesting the substitution. In practice, collateral practitioners expect same-day (or at worst, next-day) return of original collateral in such circumstances. However, strict adherence to the credit support documents allows an additional one-day lag (i.e. return two business days after the delivery of substitute collateral) which was particularly troublesome during the recent periods of market stress.

Recommendation 22: ISDA and its members should consider amending the substitution mechanism in the standard form ISDA credit support documents to provide for closely sequential execution of the two collateral transfers involved in a substitution.

Practical considerations of current settlement environments may impose a limit on what can be achieved in practice. Detailed study of the problem is recommended as a first step, followed by an effort to minimize the delay in returning original collateral.

PART 3

PROPOSED ACTION PLAN AND SUMMARY OF RECOMMENDATIONS

3.1 INTRODUCTION

This section organizes the recommendations outlined in Part 2 into proposed action plans targeted at three groups:

- **individual institutions;**
- **ISDA working in conjunction with its membership; and**
- **regulators/legislators**.

These proposed action plans include both short term and long term goals. Some of the recommendations can be implemented easily by individual institutions, others will require substantial planning and involve internal systems and policy changes. Some of the recommendations require industry cooperation working through ISDA, and some will entail substantial discussions with regulators and/or legislators. In addition to the action plans, the chart in this section provides a convenient summary catalog of the entire list of recommendations in Part 2.

3.2 ACTION PLAN FOR INDIVIDUAL INSTITUTIONS

Each institution that uses collateral should review the recommendations and determine which are applicable given the institution's business objectives and stage of collateral management. Many recommendations can be accomplished unilaterally, while others will result in changes to the way an institution deals with its counterparties when negotiating or operating collateral agreements.

Understand the Role of Collateral in Credit Risk Management
Refer to Recommendations 1, 2 and 15

- Institutions should focus their credit analysis and risk management on traditional measures of current credit exposure, potential future exposure and default probability, but should also understand the relationship of their counterparty's exposure and liquidity to the market as a whole.
- Credit analysis and measures should incorporate the effects of collateral, where appropriate. Institutions should recognize that collateralization can create risks that need to be monitored and effectively managed. An institution must recognize that collateral is a complement to sound credit analysis, and not a substitute for it.

- Institutions should consider developing collateral terms for inclusion in collateral agreements that seek to take account of the possible changes in relative risk between the parties over time.

Evaluate the Organizational Structure and Operational Risks of the Collateral Management Function

Refer to Recommendations 2, 3, 4, 5, 6, 7, 21

- Senior management should recognize the importance of effective collateral management, and should take steps to understand the condition and value of any existing collateral program.

- Institutions should determine if a centralized collateral management function would achieve efficiency and risk management benefits, and implement one if appropriate.

- Institutions should ensure that, especially in times of crisis, very close coordination exists between collateral, payments and settlements functions, as this can be an important source of information and a vital point at which incipient losses can be controlled.

- Institutions should ensure an adequately resourced and staffed collateral management function, including operational support of collateralized business levels with additional investment in technology and risk management as appropriate. Contingency plans should be in place to accommodate increased staffing needs in periods of market stress.

- Institutions, particularly the business and credit managers, should ensure that transaction and collateral valuation data is provided to the collateral management function on a timely and accurate basis. Failure to do this can severely undermine collateral effectiveness, and was the source of losses for several firms during the 1997 and 1998 market crisis events.

- In anticipation of the growing trend toward cross-product collateralization institutions are urged to give early consideration to the technology and process implications of such potential changes.

Endeavor to Minimize Collateral-Related Disputes

Refer to Recommendations 7, 8 and 9

- Collateral managers, individually and working together as needed, should take steps to minimize the frequency and effect of disputes. Actions should focus on pre-emptive reconciliation at transaction portfolios and valuations, and streamlining of the reactive approach to resolving differences when they do occur.

- Institutions should work with ISDA to develop informal dispute resolution guidelines.

- Institutions should also reduce the potential for future conflict by documenting and then consistently implementing the collateral terms that they require.

Review Policies Regarding Acceptable Collateral Types, Haircuts, Cash, and Initial Margin Requirements

Refer to Recommendations 11, 12, 13, and 14

- Institutions should consider acceptance of a wider range of assets as collateral, where this may be appropriate to the scale and scope of the institution's collateralized business.

- Institutions should consider the possible advantages of wider acceptance of cash collateral including supporting shorter time cycle collateral agreements and preserving liquidity in the event of accidental failures in the settlement of securities collateral. Collateral practitioners should review current conventions on the rate of interest on cash collateral, and might consider the advantages of some common reference source for benchmark collateral asset prices.

- Institutions should review their internal haircut methodologies for collateral assets, and ensure that the appropriate volatility measures are considered over the appropriate timeframe when setting haircut levels.

Ensure Awareness of the Legal Environment in which the Collateral Function Operates

Refer to Recommendation 18

- Institutions that use collateral should ensure that they have undertaken the appropriate level of review to ensure their understanding of the enforceability risks of collateral agreements in different jurisdictions. The appropriate degree of research will depend on an institution's scale of collateral program, the jurisdictions in which it operates, and the amount of credit risk which is protected by collateral.

3.3 ACTION PLAN FOR ISDA

A number of the recommendations in Part 2 require cooperative industry action. The following is an action plan for ISDA, in some cases working with other industry trade associations to achieve a common goal.

Establish Working Groups to Discuss Recommendations Affecting the Industry
Refer to Recommendations 7, 8, 11, 13, and 14

- ISDA should provide a forum to discuss issues requiring industry cooperation including: informal and formal dispute resolution, the expansion of collateral types, haircut methodology, and cash collateral (including a benchmark asset pricing service).

Review and Enhance the Structure, Provisions, and Negotiating Mechanisms of the Existing Standard Form ISDA Credit Support Documents
Refer to Recommendations 8, 10, 16, and 17

- ISDA should consider amendments to its standard for credit support documents in order to implement any revised approaches to dispute resolution agreed by market participants.

- ISDA should work with its members to determine realistic parameters for reduced collateral time cycles, and consider incorporating changes into the credit support documents.

- ISDA should consider revision of the standard for credit support documents to create a single document with a common mechanical core plus additional elective legal terms to accommodate different legal modes of taking security and jurisdiction-specific requirements. ISDA should also explore the applicability of a protocol-based application for credit support documents.

- ISDA should, with representatives of member firms, consider simplification and reduction of any redundant elective or variable clauses in the credit support documents.

- ISDA should explore the creation of an electronic document interchange/repository for ISDA documents, including credit support documents.

Continue to Survey the Secured Transaction Laws of Other Jurisdiction
Refer to Recommendations 18 and 19

- ISDA should continue to pursue legal research into collateral enforceability in those jurisdictions which are of interest to its members. ISDA should also explore the possibilities for centralized sharing of private research in full or summary form,

recognizing that some institutions may reasonably consider elements of their private research to be proprietary.

- ISDA should continue to provide assistance to national legislators, central banks and others who have an interest in reforming current bankruptcy or other codes to improve the legal certainty around close-out netting and collateralization.

Continue Efforts to Advance Cross-Product Netting and Cross-Product Collateralization
Refer to Recommendations 20 and 22

- ISDA should examine the possibilities for documentation and practice that would accommodate broader cross-product, cross-entity netting and collateralization. ISDA should undertake this exercise in co-operation with other industry associations as appropriate.

- ISDA, working with collateral practitioners, should consider changes to the credit support documents that would provide for a near-contemporaneous substitution of collateral between parties.

- ISDA should continue to take the lead in facilitating discussions between individual institutions on collateral topics of common interest through its Collateral and Documentation Committees.

- ISDA should also extend the level of quantitative understanding of the use of collateral by undertaking future member surveys.

3.4 ACTION PLAN FOR REGULATORS AND LEGISLATORS

Regulators and legislators have a pivotal role in the future development of collateralization as a credit risk mitigation technique. Set out below are the areas in which action on the part of industry regulators and legislators would be welcomed:

Review Regulatory Requirements to Remove Possible Impediments to Advancements in Risk Management Methodologies
Refer to Recommendations 11 and 12

- Regulators should consider whether there are any regulatory impediments to the use of particular types of asset for collateral purposes that could be alleviated. Of general concern would be any adverse implications of using cash as collateral, but also requirements that unnecessarily restrict the types of assets that may be accepted as collateral where a legal and internal control environment exists that supports the acceptance of a wider group of assets.

Consider Simplification and Modernization of the Laws that Govern Secured Transactions

Refer to Recommendations 18 and 19

- Legislators should consider whether there are any legislative impediments to the development of sound collateral practice in their jurisdiction that could be eliminated. in general the legal areas of focus would include: creation and perfection requirements for security interests or pledges of collateral; recognition of title transfer collateral arrangements; characterization of the location of dematerialized securities used as collateral; rehypothecation of collateral assets; insolvency uncertainties (e.g. preferences, stays on enforcement); and general conflict of laws issues in relation to cross-border transactions.

Ensure that Regulatory Requirements Facilitate the Advancement of Cross-Product Netting and Cross-Product Collateralization

Refer to Recommendations 20 and 21

- Regulators and legislators should consider whether it is possible to remove any impediments to the development of cross-product and cross-entity close-out netting and collateral arrangements, such as those stemming from firewall or other requirements that would force two parties to segment across multiple legal entities the portfolio of business between them.

- Finally, it is suggested that regulators and legislators might more generally review the regulatory, supervisory and legal frameworks related to collateralization, and consider any changes that might encourage the continued development of sound, prudent use of collateral to mitigate credit risk. Topics of possible focus might include the capital requirements for robustly collateralized exposures, greater acceptance of on- versus off- balance sheet netting, guidance for disclosure of exposures protected by collateral, and the recognition of credit models that accurately reflect the benefit of collateral (this point is obviously to be considered in the broader context of possible model-based approaches to credit risk).

3.5 INDEX OF RECOMMENDATIONS

Subject Matter	Recommendations By Number
Credit Analysis and Collateralization	**Recommendation 1:** 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 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.
Managing the Risks of Collateralization	**Recommendation 2:** Institutions should review the composition of their collateralized portfolios regularly to assess the risks that collateralization introduces. These collateral risks should be reported to management and actively managed where appropriate. **Recommendation 3:** The collateral function should be structured so as to minimize operational risk. Extensive process automation and the implementation of a rigorous control environment are critical. Institutions should give consideration to centralizing the collateral function or developing a series of linked "hub and spoke" operations. **Recommendations 4:** Institutions should ensure coordination between the collateral, payments and settlement functions. **Recommendations 5**: Institutions should recognize the importance of the collateral function and maintain appropriate levels of suitably qualified staff. **Recommendation 6:** Institutions should emphasize the need to provide the collateral function with quality data to enable appropriate and timely decision making.

Subject Matter	Recommendations By Number
Dispute Resolution	**Recommendation 7:** Institutions should define and implement detailed and, where practicable, automated reconciliation procedures. **Recommendation 8:** ISDA and its members should establish guidelines for informal dispute resolution practice. **Recommendation 9:** Institutions should apply the terms of their collateral agreements consistently in order to ensure greater predictability.
Shortening the Collateral Cycle to Reduce Exposures	**Recommendation 10:** ISDA and its members should consider revising credit support documents to include the option of a shorter time cycle for valuation, delivery and liquidation of collateral. Parties should not be required to use these shorter cycle documents, but some pairs of counterparties may elect to use them in order to further minimize risk. Industry professionals in particular should consider the risk and capital reduction benefits of such an election. **Recommendation 11:** Institutions should consider drafting into their collateral agreements a provision that, when a collateral delivery failure occurs and cannot be corrected immediately, cash will be delivered and accepted as an interim fallback for the collateral of choice. This would reduce time cycles and preserve the liquidity of parties that are expecting to receive collateral.
Expansion of Collateral Types	**Recommendation 12:** Institutions should continue to consider the use of a wider range of assets as collateral, subject to normal commercial considerations such as credit quality, liquidity, correlation to the counterparty, ease of custody and handling, and ease of pricing. Greater consideration should be given to use of cash as potential collateral with additional consideration being given to problems of determining rates of interest and appropriate payment procedures. ISDA and its members should provide a forum to discuss the issues impacting expanding collateral types as well as the introduction of a reference data service to collect market pricing of benchmark assets widely used as collateral. **Recommendation 13:** Institutions should review their internal methodologies used to determine "haircuts" for collateral assets, and should ensure that appropriate volatility measures are considered over the appropriate timeframe when setting haircut levels.

Subject Matter	Recommendations By Number
Initial Margin	**Recommendation 14:** Institutions should each develop clear internal policies for determining the circumstances in which initial margin should be required, and a methodology for setting the required level of initial margin. Insistence on initial margin should be consistent with an institution's risk appetite and the commercial situation in question.
Legal and Documentation Issues	**Recommendation 15:** Institutions should ensure that collateral agreements address the possibility of credit quality changes that alter the relative risk between the two parties, and establish appropriate thresholds and other parameters which vary in response to key drivers (such as credit ratings, net asset value levels, or other appropriate factors). The possible liquidity implications of unilateral credit support documents should be taken into account. **Recommendation 16**: ISDA and its members should consider simplification of the documentation structure and execution process for the ISDA Master Agreements and ISDA standard form credit support documents. **Recommendation 17**: ISDA and its members should consider reduction of the variable or elective elements of the standard form ISDA credit support documents. **Recommendation 18**: Institutions should understand the enforceability of their collateral agreement in different jurisdictions. **Recommendation 19**: Institutions, ISDA and industry supervisors should promote harmonization of the laws and regulations that impact the collateral function.
Cross-Product Netting and Collateralization	**Recommendation 20**: ISDA and its members should develop documentation that would permit the cross-product netting and cross-product collateralization of a broad range of products. **Recommendation 21**: Institutions should identify the systems and operational enhancements necessary to implement broader cross-product netting and cross-product collateralization. ISDA and its members should provide general guidance on implementation issues.

Subject Matter	Recommendations By Number
Substitutions and Liquidity	**Recommendation 22**: ISDA and its members should consider amending the substitution mechanism in the standard form ISDA credit support documents to provide for closely sequential execution of the two collateral transfers involved in a substitution.

APPENDIX 1

ISDA COLLATERAL MARKET SURVEY

Collateral Market Survey

Section 1: Reference Information

THIS SECTION WILL BE DETACHED BY ISDA UPON RECEIPT TO ASSURE THE DETAIL RESPONSES REMAIN CONFIDENTIAL IN LATER PROCESSING AND EVALUATION.

Question Number	Question	Answer
1.	Company Name:	
2.	Who is the person Completing this survey:	Name: Title:
3.	Date Completed:	
4.	Who is the person who heads up the collateral function at your company:	Name: Title:
5.	Please indicate any limitation to your responses to this survey; e.g., if you will only refer to one geographic region, or if your answers apply only to swaps, or repos, or another product area, please indicate so.	

Section 2: Your Customer Base

Question Number	Question	Answer
1.	Is collateral a cost center or a profit center in your firm?	
2.	Of the collateral arrangements you support, what percentage are with a) leverage funds b) market professional banks and broker dealers c) corporates d) central banks and supranational authorities e) other (i.e. private clients, educational trusts, end-users etc.)?	a) % b) % c) % d) % e) % Total = 100%

1.	Please rate the overall quality of the collateral function at your counterparties. Show the number of counterparties that you would rate in each category. The total should add up to the number your gave in question 11. If you'd like to indicate the names of your best or worst counterparties, feel free to do so.	Number Top quality [ ] Good [ ] Acceptable [ ] Below average [ ] Total [ ]

Section 3: Policy

Question Number	Question	Answer
1.	As a standard operating matter, what products does your collateral management function cover? Please circle as many options as applicable: a) All derivatives as specified in the 1992 ISDA Master document b) A subset of derivatives as specified in the 1992 ISDA Master document. c) Repurchase and Reverse-repurchase transactions d) Exchange Traded Futures and Options e) Loans f) Other	a) b) c) d) e) f)
2.	Do you have a pre-determined list of the assets you will accept as collateral? [*If Yes, please attach a copy with your response.*]	a)Yes b)No
3.	As of December 31, 1998, how much Collateral were you holding? [Please attach a breakdown by asset type and market value where available.]	
4.	As of December 31, 1998, how much collateral had you pledged out? [Please attach a breakdown by asset type and market value where available.]	

Section 4: The 1998 Market Events

Question Number	Question	Answer
1.	How many of your collateralized counterparties did you close-out in 1998?	
2.	How much did you lose as a result? *(Answer very much appreciated but optional. Give a general range if preferred.)*	
3.	How many of your collateralized counterparties opted to close down during 1998?	
4.	How much did you lose as a result? *(Answer very much appreciated but optional. Give a general range if preferred.)*	
5.	What were the primary reasons for any such losses? For example: a) Inadequate documentation b) Poor data quality i.e. missing or mis-booked trades c) Disparate valuation methodologies d) Market movements between default and close-out Or other reasons *(Explain please)*	
6.	What changes have you implemented or do you plan to implement as a result of the lessons you learned from the crisis? *[Please continue on a separate sheet of paper if necessary.]*	
7.	What is the biggest hurdle that collateral practitioners face in 1999? *[Please continue on a separate sheet of paper if necessary.]*	
8.	What practical support can ISDA provide to help overcome these hurdles? [*Please continue on a separate sheet of paper if necessary.]*	
9.	What steps can practitioners take amongst themselves to facilitate the ease and maximize the soundness of operating collateral programs? *[Please continue on a separate sheet of paper if necessary.]*	

Section 5: Base Line Data

Question Number	Question	Answer
1.	When did your company start its formal collateral program? *(Please estimate date if uncertain)*	
2.	How many full time equivalent people(FTEs) were working in the function at that time?	
3.	How many collateral arrangements were being supported by the function at that time? *(Please estimate if uncertain)*	
4.	How many FTEs worked in the function at the end of 1998?	
5.	How many FTEs are predicted to work in the function at the end of 1999?	
6.	How many collateral arrangements were supported by the function at the end of 1998?	
7.	How many collateral arrangements do you predict you will be supporting by the end of 1999?	
8.	What was your collateral cost base in 1998? (include people, technology, and collateral funding costs; estimate if necessary)	
9.	What is your predicted collateral cost base for 1999?	
10.	How much have you spent on the development of collateral technology in the past 3 years?	
11.	Where do you organize the collateral function within your firm? (e.g. operations, credit, mid-office, etc.)	

APPENDIX 2

CONTRIBUTORS TO THE ISDA 1999 COLLATERAL REVIEW

CONTRIBUTORS TO THE ISDA 1999 COLLATERAL REVIEW

Acknowledgements

The following individuals were instrumental in the structuring and drafting process for the ISDA Review.

- Harry Cheever, The Chase Manhattan Bank
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- David Maloy, Warburg Dillon Read

Penny Davenport of J. P. Morgan developed the Collateral Market Survey questionnaire.

Listed below are the collateral practitioners who attended the collateral off-site meeting at the Palisades Conference Center in New York, January 20-21, 1999. They provided the framework and contents for the document based on the meeting discussions and the Collateral Market Survey results. They also commented extensively on numerous drafts of the ISDA 1999 Collateral Review. We have listed the individuals and the institutions for which they worked at the time they participated in the off-site meeting. In addition, members of the Collateral Committee not attending the offsite also offered significant contributions to the drafting process. ISDA greatly appreciates the considerable efforts of all the collateral practitioners connected with project.

NAME	INSTITUTION
Karen Arneson	Bank of America
Katja Braumoeller	Dresdner Bank AG
Harry Cheever	The Chase Manhattan Bank
Michael Clarke	J.P. Morgan
Steve Conway	Morgan Stanley Dean Witter
Alex Crepeau	Lehman Brothers
Rob Daigle	Salomon Smith Barney
Patrick Harris	Goldman Sachs & Co.
Mark Jennis	Bankers Trust Company
Scott Linden	Merrill Lynch & Co. Inc.
David Maloy	Warburg Dillon Read
Vicky Manasses	ABN AMRO Bank N.V.
Robert McWilliam	ABN AMRO Bank N.V.
Cosette Reczek	Citibank N.A.
Savvas Savvinidis	Moore Capital Management, Inc.