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# **ISDA COLLATERAL SURVEY 2000**

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**ISDA **

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## TABLE OF CONTENTS

<b>1</b>	<b>EXECUTIVE SUMMARY</b> .....	<b>1</b>
1.1	ISDA Collateral Survey 2000 Key Conclusions .....	1
1.2	Profile of Collateral Management .....	2
1.3	Commitment to Collateral Management.....	4
1.4	Risk Management Policy .....	7
1.5	Collateral Management Policy, Practices and Procedures.....	8
1.6	Legal Issues.....	11
1.7	Looking to the Future.....	13
1.8	Report Structure.....	13
<b>2</b>	<b>OVERVIEW</b> .....	<b>14</b>
2.1	Survey Background and Objectives .....	14
2.2	Profile of Survey Participants.....	15
2.3	Stages of Collateral Program Development .....	17
2.4	Business Environment.....	18
2.5	Remaining Challenges.....	20
<b>3</b>	<b>PROFILE OF COLLATERAL PROGRAMS</b> .....	<b>22</b>
3.1	Market Activity.....	22
3.2	Collateral Agreements.....	23
3.3	Collateralized Counterparties .....	25
3.4	Assets Used as Collateral.....	27
<b>4</b>	<b>COMMITMENT TO COLLATERAL MANAGEMENT</b> .....	<b>30</b>
4.1	Expenditures .....	30
4.2	Technology Support.....	33
4.3	Data Sources .....	36
4.4	Staffing and Resource Availability.....	36
4.5	Reporting Lines.....	37
4.6	Key Performance Measures.....	38
<b>5</b>	<b>RISK MANAGEMENT</b> .....	<b>39</b>
5.1	Credit Analysis .....	39
5.2	Managing the Risks .....	40
5.3	Collateral Haircuts.....	46
5.4	Initial Margins and Other Static Amounts.....	46
5.5	Setting Threshold Amounts and Triggers .....	47

<b>6</b>	<b>COLLATERAL MANAGEMENT POLICY, PRACTICE AND PROCEDURES.....</b>	<b>50</b>
6.1	Collateral Policy .....	50
6.2	Key Operational Considerations.....	51
6.3	Exposure Valuation .....	52
6.4	Disputes and Dispute Resolution.....	52
6.5	Consistency .....	54
6.6	Margin Calls.....	55
6.7	Relationship Between Collateral Management and Other Units .....	56
6.8	Rehypothecation and Re-Use.....	59
6.9	Liquidations .....	60
<b>7</b>	<b>LEGAL ISSUES.....</b>	<b>61</b>
7.1	Legal Enforceability of Collateral Agreements.....	61
7.2	Collateral and Netting Opinions .....	62
7.3	An Assessment of Regional and Country Challenges.....	63
7.4	Regulatory and Legal Harmonization .....	67
<b>8</b>	<b>FUTURE TRENDS.....</b>	<b>69</b>
8.1	Business Drivers .....	69
8.2	Technology Implications.....	70
8.3	Collateral Assets .....	70
	<b>APPENDIX 1 – ISDA AND ISDA'S COLLATERAL WORKING GROUP .....</b>	<b>71</b>
	<b>APPENDIX 2 – ACKNOWLEDGMENTS .....</b>	<b>72</b>
	<b>APPENDIX 3 – BRIEF GLOSSARY OF SELECTED TERMS AS USED IN THIS REPORT.....</b>	<b>74</b>
	<b>APPENDIX 4 – ISDA 1999 COLLATERAL REVIEW RECOMMENDATIONS .....</b>	<b>78</b>
	<b>APPENDIX 5 – ISDA COLLATERAL SURVEY 2000.....</b>	<b>81</b>

## **CHAPTER 1 - EXECUTIVE SUMMARY**

### **1.1 ISDA Collateral Survey 2000 Key Conclusions**

Collateralization is one of the key credit risk mitigation techniques available in the privately negotiated derivatives industry and it continues to grow in importance as firms expand their businesses and require additional credit lines. ISDA is committed to promoting collateralization through the development of its credit support documentation as well as through the facilitation of collateral management practice. This survey is another important step in understanding existing market practice and in developing documentation and programs to support that practice.

The survey confirms that collateral management has become an established discipline in its own right, exhibiting strong past and expected future growth, operating within a well-defined framework of responsibilities and objectives.

- ❑ Increasing trading volumes have made many firms reach their credit limits, which in turn has compelled them to collateralize their activity. The key business benefits of collateralization are credit risk management and expanded credit capacity, increased liquidity and cost of capital savings.
- ❑ Collateralized trading is already widely accepted in the United States and is becoming increasingly common in many other jurisdictions as legal and regulatory reform permit.
- ❑ The *ISDA 1999 Collateral Review* contained an estimate of the total value of collateral in circulation across the privately-negotiated derivatives industry at the end of 1998 in the range USD 175 to USD 200 billion. On the basis that the 46 survey participants have now specifically reported some USD 138 billion of collateral in circulation given and received at the end of 1999, then this would appear to validate the earlier estimate of the overall market size.
- ❑ The estimated number of collateralized counterparties is currently in the range 1500 to 2500. With a total reported 12000 signed collateral agreements.
- ❑ Participants reported a 39% growth in the number of agreements for 1999 over 1998 with a further 34% increase projected during 2000.
- ❑ Recent credit situations have demonstrated the effectiveness of collateral as a mitigant against counterparty risk, as losses after collateral liquidation have been kept to a minimum.

The development of an effective collateral management capability is key to the future growth and strategic ambitions of many firms within the privately negotiated derivatives markets.

As collateralization continues to grow, there are some remaining challenges which constrain expansion including legal uncertainty, infrastructure limitations, lack of expertise, and the narrowness of collateral eligibility tables.

- Efforts to eliminate legal uncertainty regarding the enforceability of netting and collateral agreements need to be maintained to promote global use of collateral.
- Risk management systems and procedures should be rigorously applied to all aspects of collateral management.
- Automated technology solutions are necessary as programs expand and become more sophisticated.

The 46 survey respondents broke down into three distinct groups: 7 institutions that accounted for the vast majority of agreements, staff, budget and systems, 29 mid scale established programs that were smaller but had been operating for a while, and 10 new entrants that had established programs in 1999 or planned to do so shortly.

### **1.2 Profile of Collateral Management**

**Large-scale, established institutions averaged 1080 agreements at year end 1999 and collateralized 55% of their OTC derivative trading while mid-scale, established institutions averaged 137 executed collateral agreements and collateralized 34% of their trades with recent entrants at 17 agreements, representing 7% of their trades. Total collateral assets given and taken was USD 138 Billion among the reporting institutions.**

**Most of the current agreements (61%) signed are ISDA New York Law Pledge Annexes, reflecting the fact that most collateralized counterparties are in the United States and Canada. However, a significant and growing percentage (27%) of signed agreements are ISDA English Law Transfer Annexes which will increase with the globalization of counterparties.**

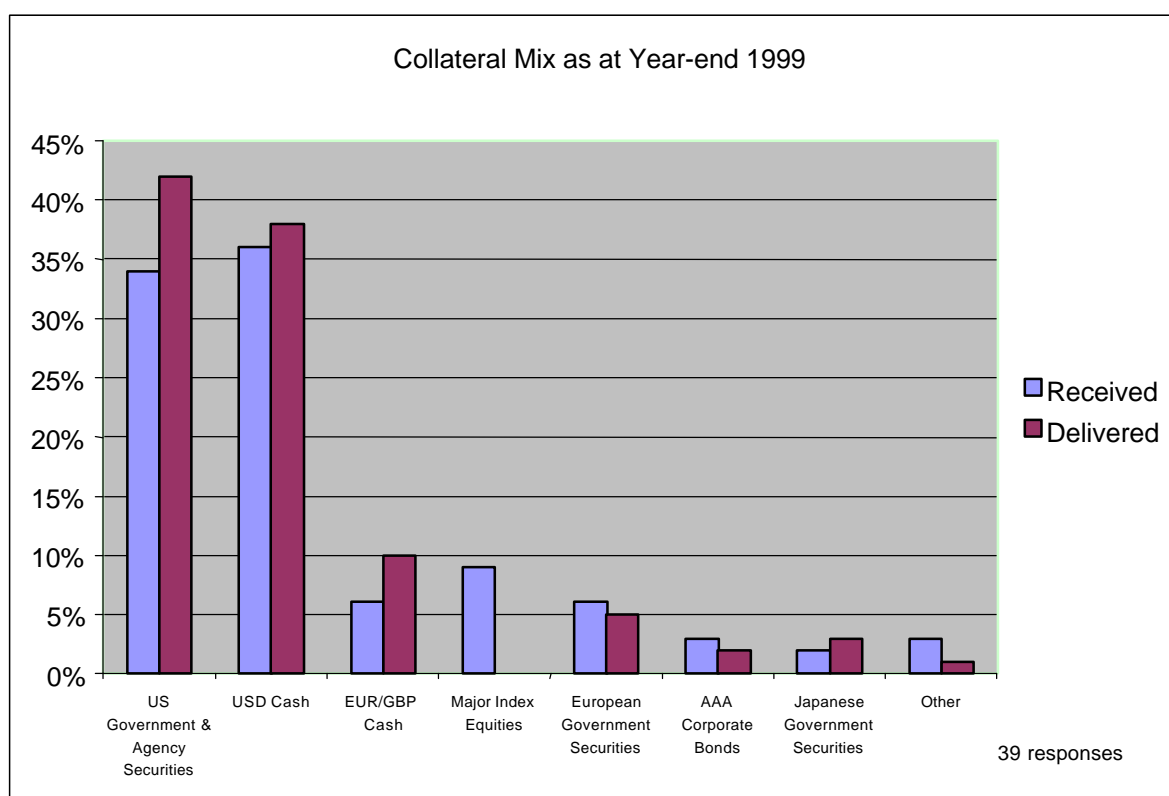
**Wholesale market counterparties are the most commonly collateralized counterparties, representing 43% of all agreements signed. Hedge funds represent 26% of the agreements signed agreements with corporates (14%) and other institutional investors (13%) are less prevalent.**

**Although USD cash is the most commonly accepted form of collateral, with U.S. Treasury and certain U.S. government-sponsored entity securities next, there is a trend toward giving and accepting European government securities.**

## Size of the Business

At year-end 1999, the total collateral in circulation among respondents was USD 138 billion. However, there is a clear concentration of collateral assets among the bigger players: they handle USD 97 billion of collateral, comprising USD 58 billion in assets held and USD 39 billion of assets posted on 72% of collateral outstanding.

The concentrations in both USD cash and U.S. Government securities reflects where business is done and the attractiveness of these highly liquid assets as acceptable collateral across the industry.

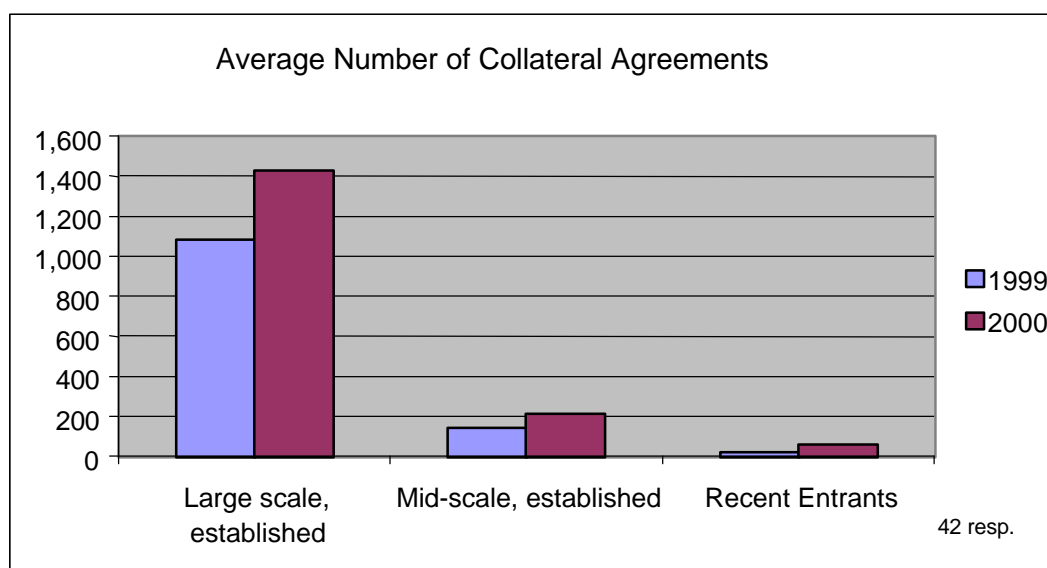


In terms of trades, survey participants reported a total of some 1.3 million trades outstanding under collateral agreements at the end of 1999, an increase in reported volumes of 15% over 1998. The rate of growth is forecast to accelerate to 19% during 2000.

While some firms reported that virtually all OTC derivative trading was conducted on a collateralized basis, the average level was some 42% with a projected increase to 50% by the end of 2000 as new agreements come on stream. The large scale established firms currently collateralize 55% of all transactions.

Meanwhile, the 39% growth in the number of agreements for 1999 over 1998 is almost exactly in line with the 40% increase projected last year; a further 34% increase is anticipated during 2000.

The advance of the larger players in terms of getting collateral agreements in place is clearly illustrated as they now benefit from investment in the time-consuming task of negotiating Credit Support Annexes and in building an operational infrastructure.

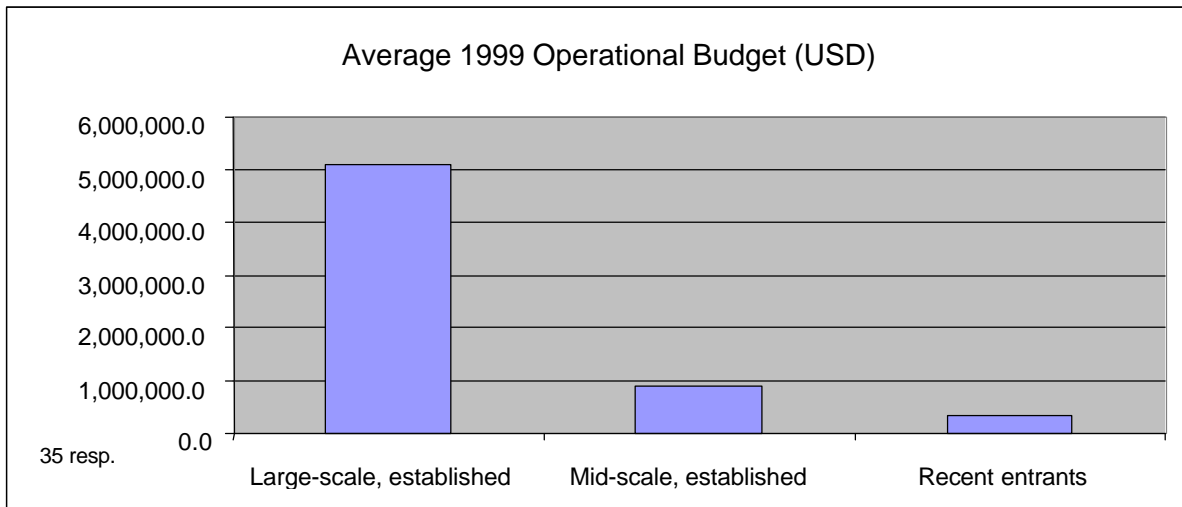


### 1.3 Commitment to Collateral Management

**Significant financial and staff resources are required to develop the systems and operational infrastructure for an effective collateral management program. The large scale established firms had an average operating budget of USD 5 million in 1999 while mid scale established firms had an average operating budget of USD 880,000. A significant portion of budgets in all categories of firms is devoted to technology development and systems support, with the majority of dollars going towards systems development, underscoring the need to continually upgrade and improve existing systems. As firms expand programs, well-trained staff is required as well, with some programs employing more than 27 individuals.**

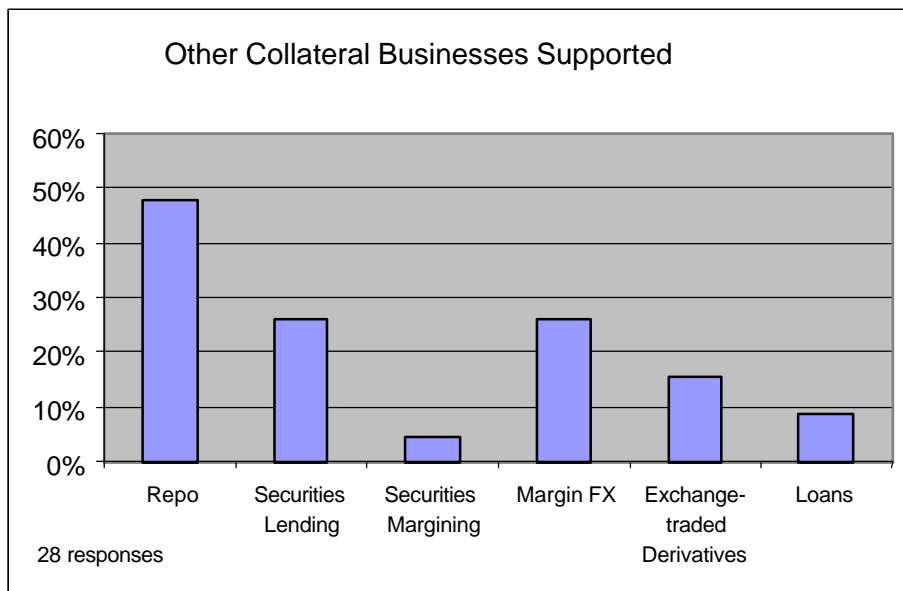
#### **Budget**

For those participants able to identify a specific operational budget for collateral management, there is a predictably wide range of responses, with budgets for the larger players averaging some USD 5 million annually.

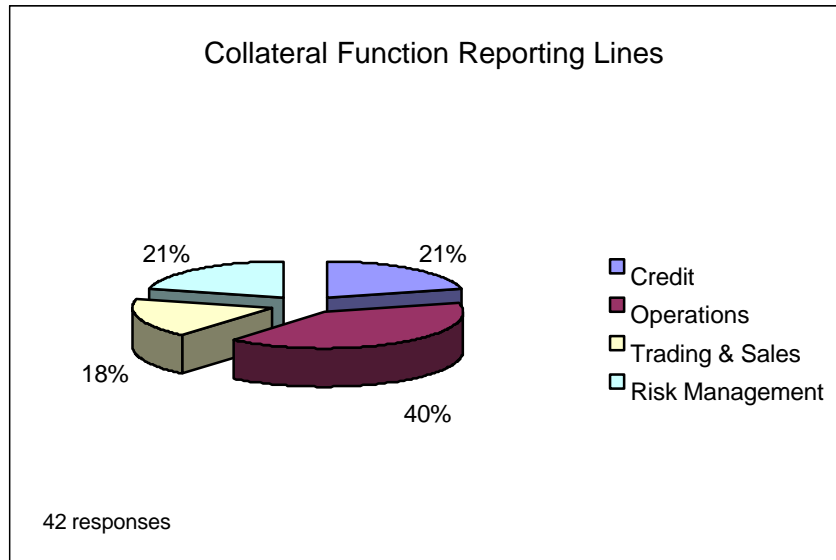


**Organization**

The trend towards counterparties looking for a single, global collateralized trading relationship across the widest possible range of products is forcing more organizations to develop sophisticated activity statistics and internal accounting methodologies. This is supported by collateral management units' common responsibility to handle collateral applicable to other trading activities, primarily repos:

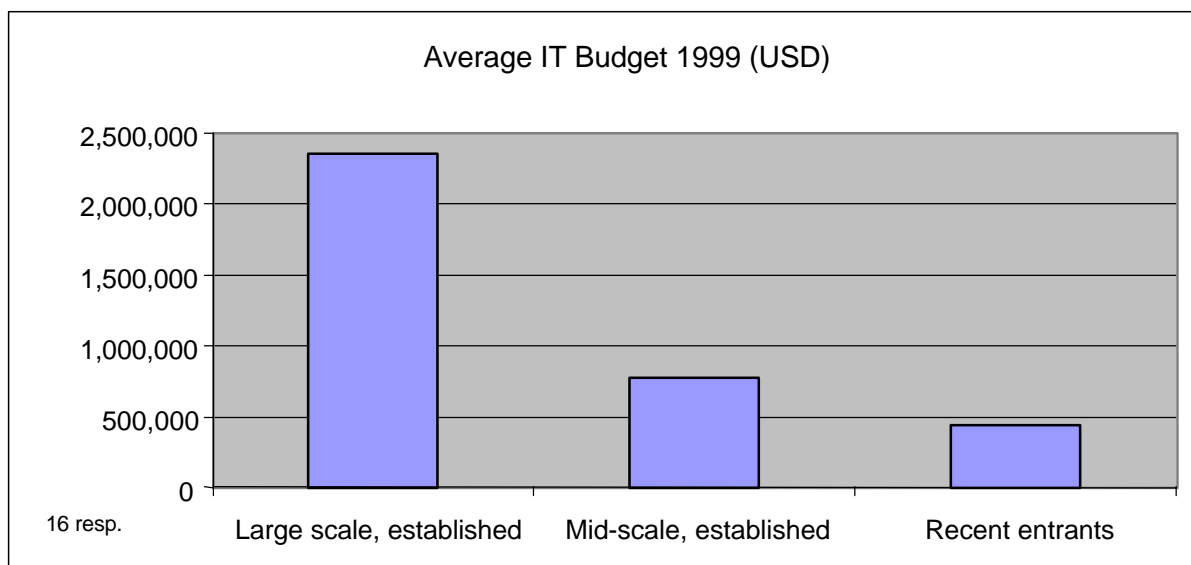


While Operations is the most common sole reporting line, for the large scale established firms, smaller programs favor multiple reporting lines across operations and credit/risk management.

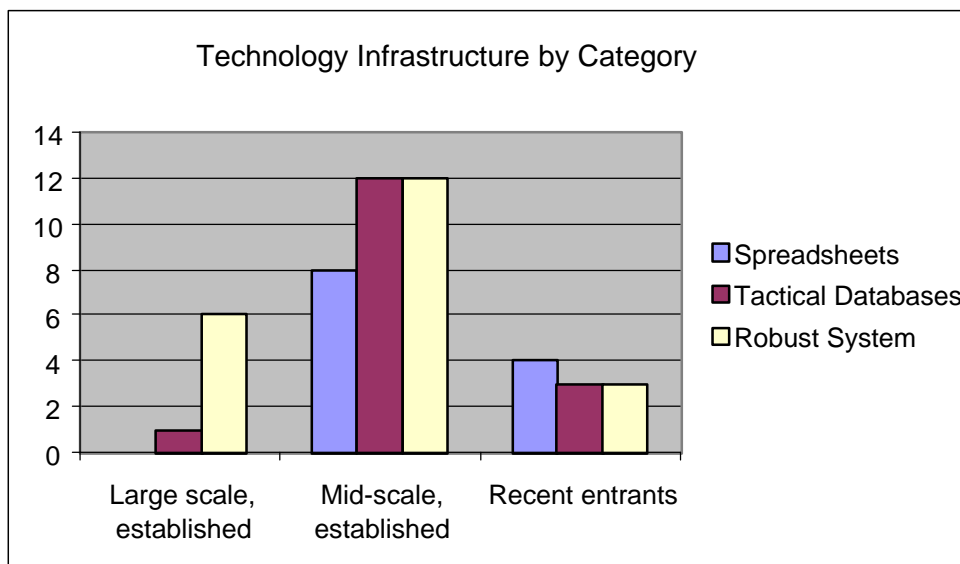


### Systems

In terms of the systems budgets for collateral management, while only a third of participants supplied information, the bigger players spend more in absolute dollar amounts (USD 2.5 million) but not as a percentage of overall budget on systems. Over 60% of respondents indicated that they had either implemented or upgraded their collateral system within the last two years, with nearly half having done so in 1999.



Even among the 43% of participants claiming to have a robust system, there is considerable variation in the degree of automation and amount of manual intervention required to maintain an effective collateral program.



Many firms begin collateral management by implementing in-house developed systems given the small number of commercial applications available. However, outside the large scale established institutions, there is a clear trend towards upgrading such in-house solutions to take advantage of the more sophisticated packages now available.

Some 66% of data feeds are automated and a further 10% require manual data entry. The continued reliance upon spreadsheets and other uploads for the remaining 24% of the data sources represents an ongoing requirement for manual intervention to operate collateral arrangements.

Development of more automated technology solutions remains a common priority across much of the industry if market expansion is to be achieved in a controlled and cost-effective manner. In the meantime, only 15% of organizations claim to have achieved straight through processing from initial data source, with no checks being required.

## 1.4 Risk Management Policy

**Institutions have made considerable progress in the active risk management of collateral portfolios with most conducting regular reviews of portfolio composition, issuer risk, liquidity risk, correlation risk, payments and settlement risk, and data and systems risk. When reviews are not conducted regularly, it is usually because the collateral being held is predominantly USD cash and U.S. government securities which mitigates the risk. In some cases, the complexity of the necessary quantitative analysis hinders implementation.**

As collateral management is part of an overall effort to contain risk in the institution, it becomes instructive to examine to what degree financial institutions incorporate advanced risk procedures in their approach to collateral management.

A first step would be to have a documented set of policies with respect to collateral management. Just under 90% of participants indeed stated they do with a majority indicating that policies address eligibility tables, haircuts and valuation frequency and procedural issues. Procedurally, firms tend to have mapped out processes to ensure control over operations; as an example, 81% of firms indicate they positively check for each collateral receipt, rather than assuming delivery has been made. In times of market stress, 80% of the respondents ensure that there is centralized control of the management of counterparty risk on payments/settlements, either in credit (50%) or collateral management (30%)

However, more “quantitative” areas of concern for risk managers require more attention. For example, over a quarter of the participants reported no recognition of collateral against potential future credit exposure. In terms of verification of risks inherent to the collateral itself a substantial percentage of respondents have a process in place to review several areas of concern, but those requiring the greatest amount of skill are receiving the least attention.

Type of Risk	Percentage of Respondents With Risk Management Procedures in Place
Collateral portfolio composition	<b>55%</b>
Issuer risk of the collateral portfolio	<b>55%</b>
Impact of a rating downgrade on liquidity	<b>55%</b>
Settlement risk of the collateral portfolio	<b>54%</b>
Custodian risk of the collateral portfolio	<b>50%</b>
Liquidity risk of the collateral portfolio	<b>43%</b>
Correlation risk of the collateral portfolio with the underlying derivatives portfolio	<b>29%</b>

### **1.5 Collateral Management Policy, Practices and Procedures**

**Most institutions have developed policies and procedures for operating their collateral management programs including guidelines for determining eligible collateral assets, valuation frequency preferences, hair cuts, roles and responsibilities, product and branch coverage, reuse of collateral, etc.**

**While daily valuation of counterparty exposure has been achieved for the less complex products, the practice needs to be expanded across all transaction types. However, 75% of margin calls are effected on a daily basis.**

**Dispute resolution and reconciliation remain the major challenges for collateral managers.**

**Cross-product collateralization continues to grow with almost 50% of the collateral programs supporting repo and OTC derivatives, and 81% of respondents indicating support for the concept.**

### **Collateral Eligibility Requirements**

While non-traditional instruments such as major index equities are becoming more widely regarded as acceptable collateral to offset credit risks arising from end-users, there is little appetite for such collateral between banks and broker dealers other than for hedging equities options for which there is a clear structural fit.

During the 3<sup>rd</sup> and 4<sup>th</sup> quarters 1999 a trend toward usage of cash collateral was noted. Looking forward, some practitioners feel that this trend will accelerate as, for many institutions, cash remains the cheapest form of collateral and is easier to move than securities. Cash also requires less complex infrastructure as it removes any valuation issues and is free from corporate actions.

As a result, asset eligibility policies revolve around a relatively narrow band of asset types, primarily cash and U.S government and quasi-government securities, although it is widely expected that this will change as regulators consider capital adequacy relief for a wider range of assets.

A high percentage (39%) of organizations claimed to have a volatility-based methodology for determining haircuts, although only 15% of organizations adopted a formal stress testing of such haircut levels on a periodic basis. This will be more important in the future, particularly if the trend towards accepting a wider range of assets as acceptable collateral becomes more pronounced.

Of some concern is the statement that many of those firms without such a methodology claimed that their ability to influence the market and negotiate such haircuts was limited. It was generally accepted that haircuts negotiated on a volatility-based method would be somewhat higher than current market levels.

### Static Amounts

On average, one out of five collateral agreements contains independent amounts of some type, this being typically motivated by the perceived lower credit quality of the counterparty: the two major groups of counterparties from which independent amounts are most commonly required being hedge funds and corporates.

Independent amounts remain special purpose variables and when they exist, there is almost an equal split between using a fixed amount or expressing the amount as a percentage of the notional principal amount of the underlying transactions. Where applicable, most respondents opt to net the independent amounts with variation margin.

### Valuation, Margin Calls and Disputes

Many firms seek to develop an infrastructure capable of achieving a daily revaluation in order to mitigate against counterparty risk and, in the case of banks, meet the criteria established under the 1988 Basel guidelines for obtaining regulatory capital savings against collateralized counterparty credit risk.

Exposure Valuation Frequency	Interest Rates	Equities	Emerging Mkts	Commodities	Currency	Credit Derivatives
Daily or better	80%	54%	30%	30%	72%	41%
Less than once a day or undisclosed	20%	46%	70%	70%	28%	59%

However, in a number of countries, even some of the larger players have not yet achieved the necessary level of infrastructure as evidenced by transaction revaluation frequency and margin call frequency.

The encouraging figures for valuation frequency translate into margin call frequency, as nearly three quarters of margin calls are effected on a daily basis:

Margin Call Frequency	
Daily or better	74%
Less than once a day or undisclosed	26%

### Disputes

Nearly two thirds of disputes are attributed to factors that relate to absence of standardized timing and valuation methodologies, pointing towards the usefulness of central services providing single-point valuations:

Missing trades	36%
FX and other rate differences	24%
Valuation timing differences	23%
Valuation methodology differences	17%

A number of participants indicated that the lack of a robust automated reconciliation environment was the single most important operational issue for the market to address.

### Re-Use and Rehypothecation

Some 83% of participants negotiated re-use as part of their pledge-form agreements irrespective of whether the institution currently intended to take advantage of such re-use operationally.

However, there was a clear segmentation in the market regarding those organizations that actually make use of this option: on average, large-scale, established players successfully redeploy 89% of the reusable collateral received, twice the re-use ratio of other firms.

Just under a quarter of respondents stated they did not actually re-use collateral, citing legal uncertainty and/ or the lack of the necessary infrastructure and tracking capability.

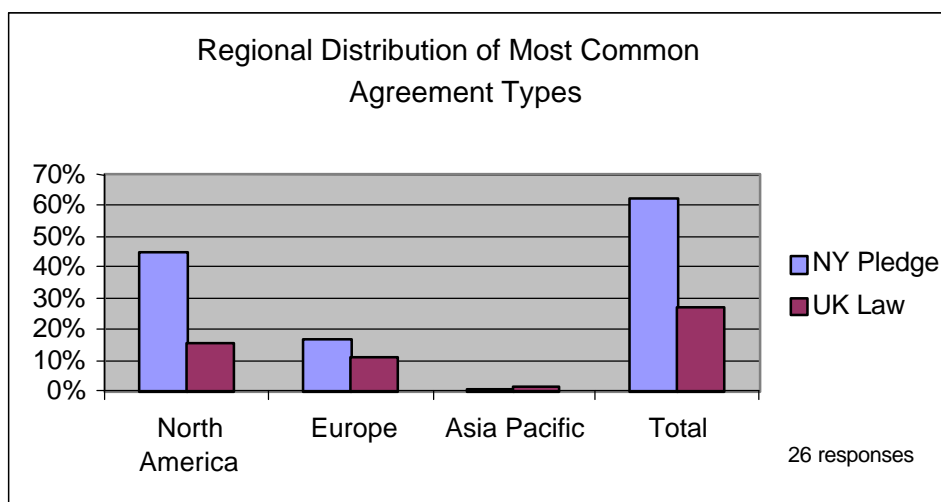
The main purpose for re-using collateral in excess of meeting outgoing collateral requirements is repo/ liquidity support, with only a small number of firms citing a central collateral pool (22%) and exchange margining (17%).

## 1.6 Legal Issues

**Legal uncertainty is still a major concern of institutions collateralizing transactions around the globe. It is critical that each institution understand its potential exposure regarding the enforceability of netting and collateral agreements, which they do through the ISDA opinions, in-house legal review, and with outside counsel as well.**

**The lack of harmonization of laws and regulation regarding collateral hinders the growth of collateralization in many areas, specifically in Europe. ISDA's Collateral Law Reform Project is working with the European Commission to achieve harmonization in the future.**

The New York Law Pledge form of BDA's Credit Support documentation (CSD) remains the most widely used (61% overall), although the ISDA English Law Title Transfer Annex is becoming increasingly common, particularly with counterparties outside North America.



To a large degree, this is attributable to the fact that 62% of collateral counterparties are located in North America. Other forms of agreement, mainly non-ISDA, such as local market and bespoke agreements, remain very much in the minority.

Although ISDA standard forms represent the market norm, 43% of participants reported not adhering strictly to contractual terms. Common explanations given included:

- Longer time required to effect reconciliation of disputes over calls and valuations
- The greater expediency of splitting small portfolio differences
- Same day (vs. next day) presentation of substitution requests
- Interest-rate calculations on cash collateral undertaken in line with local market practice rather than as set out in the documentation

Overall, a fair amount of investigation is undertaken before signing new CSD; reliance upon authoritative legal interpretation rests roughly equally upon external counsel, in-house counsel and the opinions ISDA solicits from local counsel.

In several jurisdictions, however, there are regulatory stances that prevent or frustrate firms from entering into collateral management agreements. This affects 11% of respondents in one way or another, with Germany (no recognition of collateral for capital adequacy benefits) and Canada (aggregate cash limit capping collateral given out) often cited.

### 1.7 Looking to the Future

Although the survey focused on examining current practice and issues, several comments can be made concerning the future based on respondent comments. That future points towards steady integration of the collateral management function with related functions within the firm (Repos, securities lending, exchange margining, etc.).

Many banks believe that, in the medium term, collateralized trading will become the standard way of trading globally in the derivatives markets, much as it is already in the United States today. There is also a trend toward including traditional non-ISDA instruments, such as repurchase agreements (“Repo”) within a single master agreement.

New areas which are expected to have a major impact on this activity include:

- Web-based data exchange, communication and reporting.
- Real-time, event-driven cash and securities processing resulting from a general industry move towards T+0 settlement providing additional liquidity and widening the window of opportunity to optimize asset usage, assuming straight through processing (STP) infrastructures are in place.
- ‘Cross-margining’ between products, entities and products/ entities.

The focus in future must be intelligent systems upgrades coupled with tighter, more cost-effective co-operation and connectivity between various areas within the firm and between firms, gradually enhancing the firm’s proper understanding of risk, risk mitigation and residual risk net of mitigation.

### 1.8 Report Structure

The remainder of this report is structured as follows:

- Chapter 2 presents an overview of the survey
- Chapter 3 provides a profile of collateral management programs
- Chapter 4 discusses commitment to collateral management
- Chapter 5 addresses risk management considerations
- Chapter 6 covers collateral management policy, practice and procedures
- Chapter 7 looks at legal issues
- Chapter 8 is an assessment of likely future trends.

## CHAPTER 2 - OVERVIEW

**Collateralization has increased dramatically in recent years to facilitate expansion of the privately negotiated derivatives business which runs up against credit capacity, liquidity, and regulatory capital constraints.**

**Most collateral management programs are relatively young (70% established since 1995, 17% established in 1999) and modest in size. However, there are a few institutions that have very large programs managing over 700 agreements with more than \$5 Billion in assets on average.**

**Despite the growth in collateralization, there are some remaining challenges which constrain expansion including legal uncertainty, infrastructure limitations, lack of expertise, and the narrowness of collateral eligibility tables.**

### 2.1 Survey Background and Objectives

Following on the success of the *ISDA 1999 Collateral Review*<sup>1</sup>, ISDA decided to conduct an extensive survey to provide an accurate picture of the extent of collateral usage, plans for expansion, and details of collateral management programs, including progress made on the recommendations included in the earlier report.

The objectives of this survey are to:

1. Provide industry participants with objective, consistent data about collateral management which they can use for:
  - Benchmarking of their collateral management function
  - Education and awareness
  - Internal sponsorship to drive strategic development within the firm.
2. Provide new entrants to the market with baseline data with which they can objectively evaluate the extent of the business benefits and opportunities resulting from collateral management.
3. Promote and showcase a dynamic, innovative growth area of financial services.

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<sup>1</sup> Available at [www.isda.org](http://www.isda.org)

4. Communicate the current market status of collateral management, and continue the dialogue with regulators and industry bodies to promote greater transparency and understanding of counterparty risk management.

An Advisory Group (see Appendix 2) was established under the direction of Penny Davenport from Halifax Group Treasury and Wholesale Banking. This Advisory Group, which provided financial as well as professional support for the ISDA Collateral Survey 2000, consisted of representatives from 9 institutions. They provided valuable input on the structure of the survey questionnaire, in the analysis of the survey results, and in the finalization of the survey report.

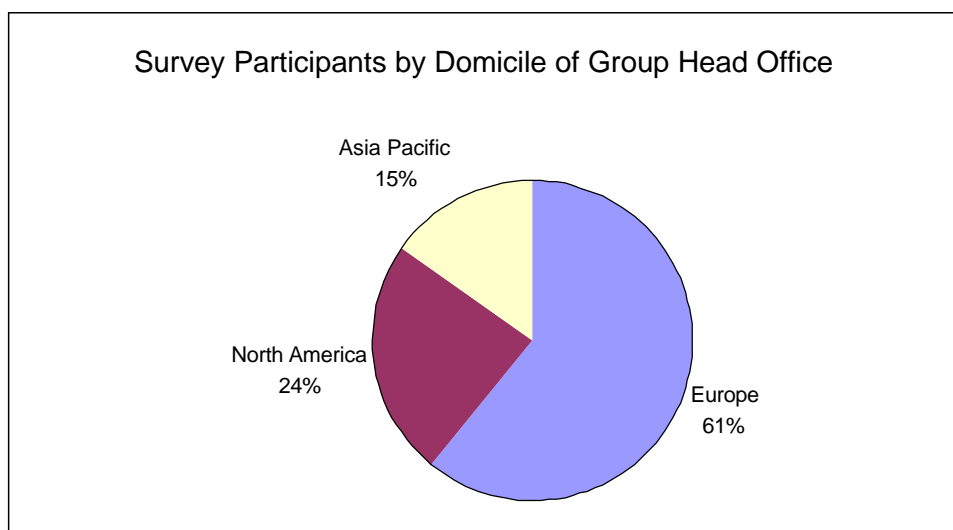
Braxxon Technology Limited, a risk management consulting firm, was selected as the survey consultant to the Advisory Group. Gerald Sampson from the Risk Management Group at Braxxon led the consulting team in the collection and analysis of the data and the initial drafting of this report.

## 2.2 Profile of Survey Participants

Survey questionnaires were sent to over 92 institutions globally. Responses were received from 46 institutions including global institutions, regional institutions and end users. Responses refer to 1999 year-end data, unless otherwise indicated. Where possible, the number of responses provided for each question is noted in the corner of the graph or table.

### Geographic Distribution

The majority of respondents were European (61% or 28 institutions), with 24% from North America (9 U.S. and 2 Canadian) and 15% from Asia (1 Chinese and 6 Japanese). Within Europe, there was a broad distribution of respondents across the region: Belgium (4), Denmark (1), Finland (1), France (4), Germany (6), Italy (3), Netherlands (1), Sweden (1), Switzerland (1), and the United Kingdom (6).



### Program Initiation

Collateral programs were initiated in three stages:

- Pre-1995      30% - 13 Programs
- 1995/97      37% - 18 Programs
- 1998/99      33% - 15 Programs

These figures underscore the relative newness of collateral management as a discipline, with almost three quarters of the programs established in the last four years and eight established in 1999 alone.

Anecdotal evidence suggests that most earlier programs were initiated by U.S. financial institutions, while Europe accounts for the majority of the later programs with the Asia Pacific only beginning to establish collateral programs.

This initiation corresponded to two developments: (1) the significant growth in derivatives transactions after 1994 which increased 57% in notional principal outstanding between year end 1994 and 1995 and another 43% between 1995 and 1996<sup>2</sup>; (2) the introduction of the ISDA standard documentation for credit support beginning in 1994. The first development put pressure on institutions to collateralize to overcome credit constraints, and the second development facilitated the establishment of relationships with standardized documentation.

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<sup>2</sup> Based on ISDA's Market Survey of interest rate swaps, interest rate options and currency swaps (YE1994 Total \$11.3 Trillion, YE1995 Total \$17.7 Trillion, YE1996 Total \$25.5 Trillion Notional Principal Outstanding)

### 2.3 Stages of Collateral Program Development

As data was analyzed, it became apparent that survey respondents naturally fell into three categories corresponding to the size and maturity of the collateral program. No one factor was determinant (e.g., geography, date, size), rather a combination of program age and various size measurements as shown below defined the categories of program development:

General Characteristic	Large-scale Established	Mid-scale Established	Recent Entrants
Year function established	<i>Pre - 1997</i>	<i>1995 - 1998</i>	<i>1999 onwards</i>
Global & Regional Heads	<i>Yes</i>	<i>Sometimes</i>	<i>No</i>
Typical Domicile of Head Office	<i>North America</i>	<i>North America or Europe</i>	<i>Europe</i>
Number of Staff In Collateral Unit	<i>&gt; 20</i>	<i>5 - 20</i>	<i>2 - 5</i>
Number of Agreements	<i>&gt; 700</i>	<i>30 - 500</i>	<i>&lt; 50</i>
Volume of Collateral [equiv USD billions]	<i>&gt; 5</i>	<i>0.3 to 5</i>	<i>&lt; 0.5</i>
Reuse Collateral Received	<i>Yes</i>	<i>Sometimes</i>	<i>Not yet</i>
Number of Institutions	<i>7</i>	<i>29</i>	<i>10</i>

Given the clear categories of development, it is therefore often more meaningful to present survey data for each category. This is especially relevant when discussing large scale established versus the mid-scale and recent entrants.

- **Large scale established**

These include the 7 leading institutions with the largest and most developed collateral programs. Not surprisingly, given the history of the market, five of these institutions come from the United States and two from Europe.

- **Mid scale established**

This represents 29 participants who developed collateral programs between 1996 and 1998. These programs are significantly smaller in number of agreements and assets under management but are generally well-established.

- **Recent entrants**

These 10 institutions have established collateral programs during 1999 or plan to do so shortly. Reflecting the current trend towards increased use of collateral outside North America, most of these organizations operate their programs from Western Europe.

### 2.4 Business Environment

Collateralization has expanded globally as institutions face business constraints that require: increased credit capacity in the face of limits, greater market access with the development of new products and entry into new geographic areas, and consideration of regulatory capital requirements.

In analyzing the business drivers motivating the expansion or introduction of a collateral program, respondents cited several factors:

- Collateralized trading is already widely accepted in the U.S. and is becoming increasingly common in many countries as legal and regulatory reform permit.
- With the increase in trading volumes there has been a corresponding demand for credit enhancement which can only be met through collateralization.
- Banks incur lower regulatory capital charges for collateralized transactions.
- Counterparties are increasingly interested in cross product collateralization, applying the ISDA documentation to non-ISDA transaction types (e.g., Repurchase Agreements, Foreign Exchange transactions).
- Many institutions are looking to expand into more complex, higher margin transactions, or more volatile market segments in an effort to increase revenue. These transaction types require collateral to be cost effective and credit risk acceptable.
- Rehypothecation, or re-using collateral received, can provide an additional source of revenue that offsets the cost of collateral pledged.
- Collateral was an effective mitigant against financial loss during recent periods of market stress.
- In its recent *Consultative Paper on a New Capital Adequacy Framework*<sup>3</sup>, the Basel Committee is considering changes to the regulatory criteria that will most probably expand the range of collateral assets eligible to offset counterparty credit risk exposures.
- Internal transaction pricing systems have been modified to reflect assumed collateralization of transactions.

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<sup>3</sup> Available at [www.bis.org](http://www.bis.org)

The top three business benefits identified by the survey participants were, in descending order of importance: credit risk management (91%), increased liquidity (72%) and cost of capital savings (59%). Taking collateral is one of the principal ways in which financial market participants reduce credit risk.

<b>Business Impact of Collateral Management</b>			
	<b>Very Important</b>	<b>Somewhat Important</b>	<b>Not Important</b>
Credit risk management	91%	9%	0%
Increased liquidity <i>i.e., More access to counterparties</i>	72%	17%	9%
Cost of capital savings	59%	24%	15%
Increased competitiveness <i>i.e., Access to better pricing and/or ability to quote lower prices</i>	39%	35%	24%
Market Access <i>i.e., Undertaking more exotic (volatile) trades</i>	35%	30%	35%
Other risk management benefits <i>e.g., Results in periodic reconciliations</i>	26%	48%	20%
Other	4%	7%	2%

Although regulatory capital savings is one of the prime business drivers for most regulated institutions to collateralize, this is less relevant for U.S. security houses and other unregulated non-bank financial institutions. Similarly, in certain jurisdictions, the regulatory framework does not yet allow banks to recognize such benefits in calculating the regulatory capital requirement for counterparty credit risk under ISDA documentation. Hence, banks operating in these jurisdictions have given lower priority to regulatory capital savings. However, if one looks at capital savings from an economic capital perspective, for which the distinction should not apply, it is perhaps surprising that more participants did not prioritise capital savings more highly.

Business benefits related to profitability, in terms of ability to quote lower prices and an ability to undertake more exotic trades were seen to be of lesser importance with only 35%-40% of respondents citing them as 'Very Important'.

It should also be noted that for many banks and regulators, however, one of the key benefits of collateralization is the greater degree of transparency available for collateralized names. This arises from the need for regular, periodic reconciliation of both trade population and also transaction valuations, which can provide a source of additional comfort for senior management that the underlying books and records for derivatives trading are accurate.

A key element of the infrastructure supporting effective collateral arrangements is their regulatory treatment. Proposals issued for comment by the Basel Committee on Banking Supervision in June 1999 have drawn a welcome from ISDA and from others because they propose greater recognition for all forms of credit risk mitigation, including collateral. (Similar proposals were also issued in November 1999 by the European Commission in relation to regulatory capital requirements within the European Union.) The proposals also indicate regulatory willingness to recognize a much wider range of assets as eligible collateral for the purposes of risk reduction as reflected in capital requirements.

These proposals are due to be finalized in late 2000 and ISDA has submitted a response to the Basel Committee expressing its support for the intended moves and offering practical guidance as to their implementation. The modernisation of the regulatory treatment of collateral and other forms of credit risk mitigation has been identified as a major objective of the review of the 1988 Accord (which gave only limited recognition to collateral assets and their effect) and is now expected to reinforce the strong growth in collateralisation highlighted by the current survey.

### 2.5 Remaining Challenges

Despite the growing use of collateral and the improvement in regulatory and legislative environments in many areas, lack of legal certainty (especially with regards to netting) in certain jurisdictions seriously impedes the efficient use of collateral and limits the amount of business that could otherwise be conducted on a collateralized basis. Legislative improvements in recent years in Belgium, France and the United Kingdom have helped, but many current laws and rules relating to collateral are complex, inconsistent and/or out of date.

Although the markets differ widely in many respects, there are some common denominators that frustrate the development of collateral agreements, namely:

- **Legal uncertainty:** Many countries do not treat collateral favourably and few have an established track record demonstrating a realistic level of confidence with respect to collateral enforceability. This uncertainty limits the amount of benefit ascribed for collateral and therefore makes the concept harder to 'sell'. Also, the diversity of legal environments around the world poses a significant challenge to collateral management and legal teams.
- **Infrastructure limitations:** Many organizations, including some relatively large banks, struggle to support a large volume of collateral agreements. One of the more common limitations is an inability to bring together all OTC derivative products on the daily basis required to ensure effective risk management of counterparty credit risks. This is not

always a barrier to business, but it does frequently result in less than optimal agreements. Typical compromises include exclusion of branches or products (due to problems in gathering all Mark to Market (MTM) figures together in one place), high thresholds and minimum transfer amounts (to reduce the amount of collateral required and the number of movements), and infrequent valuations (e.g., monthly) instead of the right to call whenever there is insufficient collateral.

- **Netting:** Lack of netting enforceability in many jurisdictions can make it very difficult to secure collateral arrangements by inflating the collateral requirement relative to that required in a netting-friendly jurisdiction. It can also become a fairness issue with parties asked to post on a gross basis but to accept collateral on a net basis.
- **Lack of expertise/familiarity:** Many parties are unfamiliar with collateral, and may even be novices to the derivatives market. This is a barrier that can be overcome, but usually only with the investment of time to help a counterparty realize the mutual benefits of collateral and what infrastructure is required to support it.
- **Narrowness of collateral eligibility tables:** Collateral eligibility tables tend to be relatively narrow and focus on those instruments deemed to be safest and most liquid, namely G7 securities and cash. This is partly attributable to regulators' previous unwillingness to consider granting regulatory capital relief for collateral obtained in less traditional forms, as well as the lower cost of using cash as collateral for many institutions. In addition, some institutions find it operationally easier since these collateral types are less risky and easier to manage.

## **CHAPTER 3 - PROFILE OF COLLATERAL PROGRAMS**

**Large-scale, established institutions averaged 1080 agreements at year end 1999 and collateralized 55% of their OTC derivative trading while mid-scale, established institutions averaged 137 executed collateral agreements and collateralized 34% of their trades with recent entrants at 17 agreements, representing 7% of their trades. Total collateral assets given and taken was USD 138 Billion among the reporting institutions.**

**Most of the current agreements (61%) signed are ISDA New York Law Pledge Annexes, reflecting the fact that most collateralized counterparties are in the United States and Canada. However, a significant and growing percentage (27%) of signed agreements are ISDA English Law Transfer Annex which will increase with the globalization of counterparties.**

**Wholesale market counterparties are the most commonly collateralized counterparties, representing 43% of all agreements signed. Hedge funds represent 26% of the agreements signed with corporates (14%) and other institutional investors (13%) less prevalent.**

**Although USD cash is the most commonly accepted form of collateral, with U.S. Treasury and certain U.S. government-sponsored entity securities next, there is a trend toward giving and accepting European government securities.**

### **3.1 Market Activity**

The survey participants reported a total of some 1.3 million trades outstanding at the end of 1999, reflecting an increase in reported volumes of 15% over 1998. A similar rate of growth is forecast for 2000.

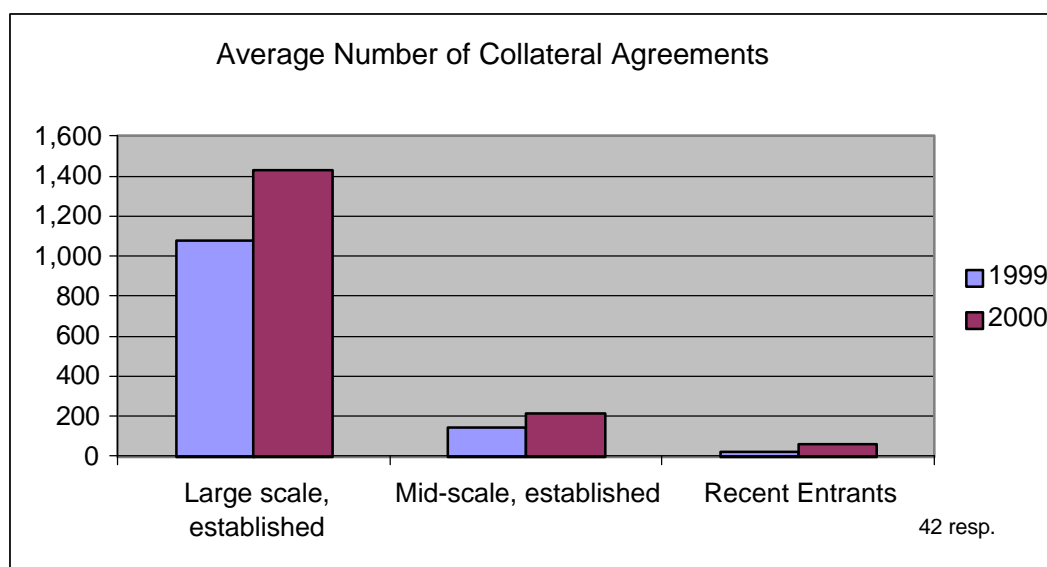
There was, however, a wide variation in the reported numbers for each institution, with the 3 largest firms having over 100,000 deals outstanding on their books at year-end 1999, compared to the average of 35,000.

While some participants reported that virtually all OTC derivative trading was conducted on a collateralized basis, the large scale established firms' average figure was 55%, substantially higher than the 34% reported by mid scale established firms. Recent entrants collateralized 7% of their trades in what is generally their first year of operation. An average 42% of trades across all categories was collateralized.

At year-end 1999, an average 64% of executed collateral agreements had active trades in the large scale established firms. Recent entrants, however, stated the highest figures, averaging 85%, reflecting the fact that agreements are only negotiated on a “just-in-time”, as-needed basis as they build their agreement inventories.

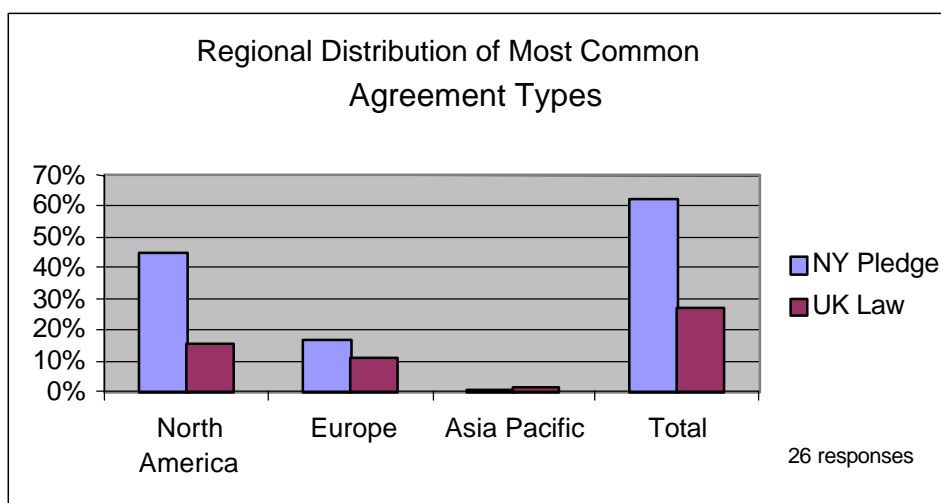
### 3.2 Collateral Agreements

Among survey participants, the average number of executed OTC collateral agreements in place at year-end 1999 was 265. However, this varied significantly by category of institution. Large scale established institutions averaged 1080 at year end 1999, projecting growth to 1433 in 2000. Mid-scale, established institutions averaged 137 in 1999, growing to 212 in 2000, while recent entrants averaged 17 in 1999, set to nearly quadruple to 62 in 2000.



Growth in the number of agreements for 1999 over 1998 for all categories was 39% which parallels the 40% increase reported in the *ISDA 1999 Collateral Review*. The average growth in agreements signed for 2000 is expected to be 34%.

The New York Law Pledge form of the ISDA Credit Support Annex (CSA) represents the most common agreement type (61% of signed agreements), reflecting the fact that the largest collateral programs are in North American institutions. The English Law Title Transfer Annex (27% of signed agreements) is becoming increasingly common, particularly with counterparties outside North America.



Agreement Type	Overall Use
ISDA CSA - NY Law Pledge Annex	61%
ISDA CSA - English Law Transfer Annex	27%
ISDA English Law Credit Support Deed	1%
ISDA CSA - Japanese Law Annex	1%
AFB Master + Credit Support Annex (French)	1%
Customised bilateral and other local agreements	9%

Other forms of agreement (some ISDA and local contract forms) remain very much in the minority and are largely used very selectively in domestic markets only.

Nine participants (20% of respondents) indicated they have entered into tri-partite agreements with central organizations such as Euroclear or Clearstream (ex-Cedel), with a combined total of 107 agreements. However, two European participants combined accounted for 67% of the total 107. We believe that these tripartite agreements are used to reduce the operational burden of managing bilateral agreements and/ or because institutions lack comfort and legal confidence in bilateral collateral management policies and procedures.

In order to arrive at a meaningful estimate of the current scale and rate of expansion of the collateral market in terms of counterparties, we assumed that a single counterparty is unlikely to have more than one collateral agreement with an individual participant organization.

On this basis, given the number of agreements reported by the more active firms, the estimated number of active collateralized counterparties is currently somewhere between 1500 and 2500. With continued rapid growth of some 30% forecast for 2000, this suggests that a further 450 to 750 new collateralized counterparties will come on stream during the next twelve months. The 46 respondents to this survey collectively handle around 12,000 agreements (double counting agreements between survey respondents). While the 46 respondents represent a majority of collateralized transactions, the global market is larger, and the number of agreements globally would exceed 12,000.

### 3.3 Collateralized Counterparties

The geographic split of collateralized counterparties at year-end 1999 was:

United States and Canada	<b>62%</b>
Western Europe	<b>21%</b>
Caribbean	<b>8%</b>
Japan	<b>3%</b>
Central and South America	<b>2%</b>
Asia Pacific (excluding Japan)	<b>2%</b>
Eastern Europe	<b>1%</b>
Africa	<b>1%</b>

The 8% shown for the Caribbean primarily reflects agreements with North American hedge funds, which operate almost exclusively on a collateralized basis and which are incorporated in the Caribbean to take advantage of low tax rates prevailing in the region. For the banks and broker dealers involved, the collateral offsets the counterparty credit quality concerns while the existence of bilateral collateral arrangements provides a useful source of liquidity against in-the-money positions for the hedge funds.

While the majority of collateral agreements will continue to be with North American counterparties, growth is expected in other regions, especially in Western Europe which should increase to 25% in the medium term.

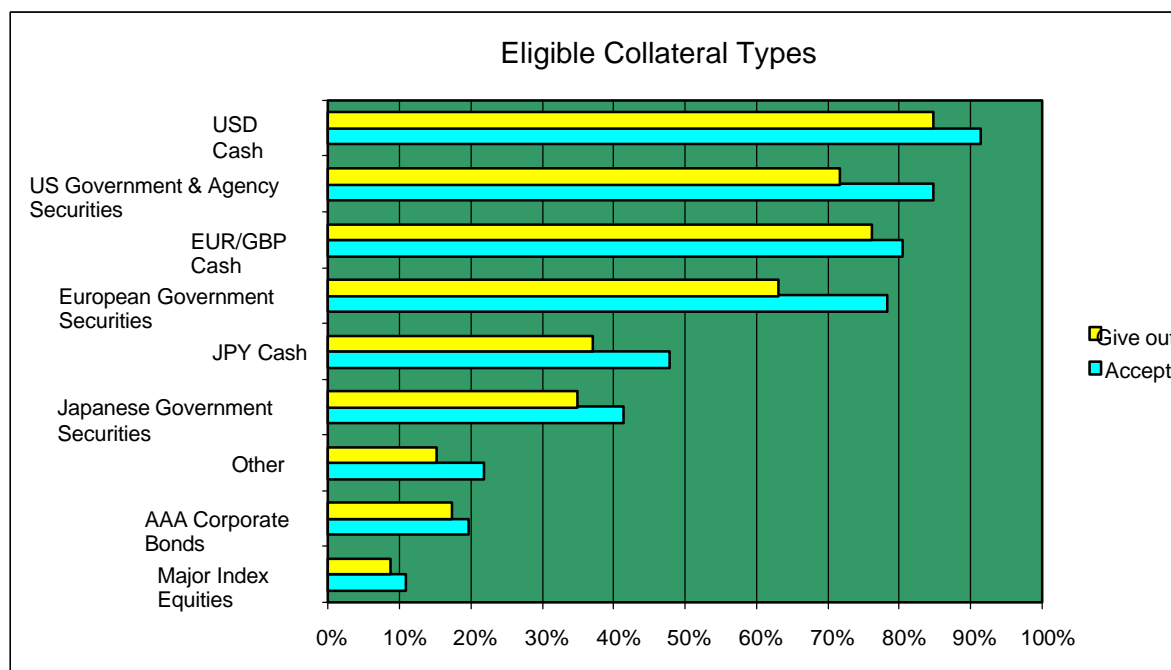
Banks and broker dealers represent the largest number (43%) of collateral agreements, hedge funds 26%, and corporates 14%. Counterparties enter into collateral agreements for a variety of reasons depending on their needs or concerns. The interdealer market collateralizes to expand capacity and reduce capital charges. Hedge funds want to collateralize in order to monetize in-the-money positions and leverage unrealized gains, while higher rated corporates may have concentration or credit risk concerns with their dealers.

### Breakdown of Collateralized Counterparties

Category	%	Comment
Banks and Broker Dealers	<b>43%</b>	Many currently use collateral in order to avoid capacity constraints with other market professionals. Increasingly, however, banks are using collateral in order to achieve regulatory capital savings available through reduction in counterparty credit risk exposures.
Hedge Funds	<b>26%</b>	Collateral agreements with hedge funds are frequently bilateral. For the counterparty, this allays credit and information quality concerns. For the hedge fund, collateral offers the ability to monetise in-the-money positions and enables them to leverage unrealised gains.
Corporates	<b>14%</b>	End-users are increasingly becoming parties to collateral agreements. For corporates that are unrated or of lower credit quality than their OTC counterparties, collateral offsets credit quality concerns amongst banks and broker dealers. For the higher-rated corporate, collateral offers a practical method of diversifying credit risk away from the counterparty to the issuer of the collateral.
Other Institutional Investors (insurance companies, mutual funds, etc.)	<b>13%</b>	These end-users use collateral to diversify credit risk away from the counterparty. Collateral also allows these entities to enter into larger transactions and/or for longer maturities.
Sovereigns, Supranationals, Government Agencies	<b>4%</b>	Most such entities generally have high credit ratings and use collateral to mitigate counterparty credit risk to banks and brokers. Many sovereign entities are very active issuers of long-dated debt and require their derivative counterparties to be collateralized to minimize funding costs. Given that the number of such issuers is limited, it is expected that their proportion of the market will continue to fall as collateral becomes more widespread across the globe.
Private Individuals	<b>N/A</b>	Some institutions have significant private banking business and collateralize relationships even with high net worth individuals. Where such arrangements are used to support margin trading activities, banks will seek to avoid credit risk and set thresholds at a prudent level to ensure that client portfolios can be closed out at times of market stress within existing collateral levels.

### 3.4 Assets Used as Collateral

Asset eligibility policies revolve around a relatively narrow band of asset types, although it is generally expected that this will change as regulators consider capital adequacy relief for a wider range of assets.



USD cash is considered to be acceptable collateral for 91% of all participants, and two respondents restricted acceptable collateral to "cash only".

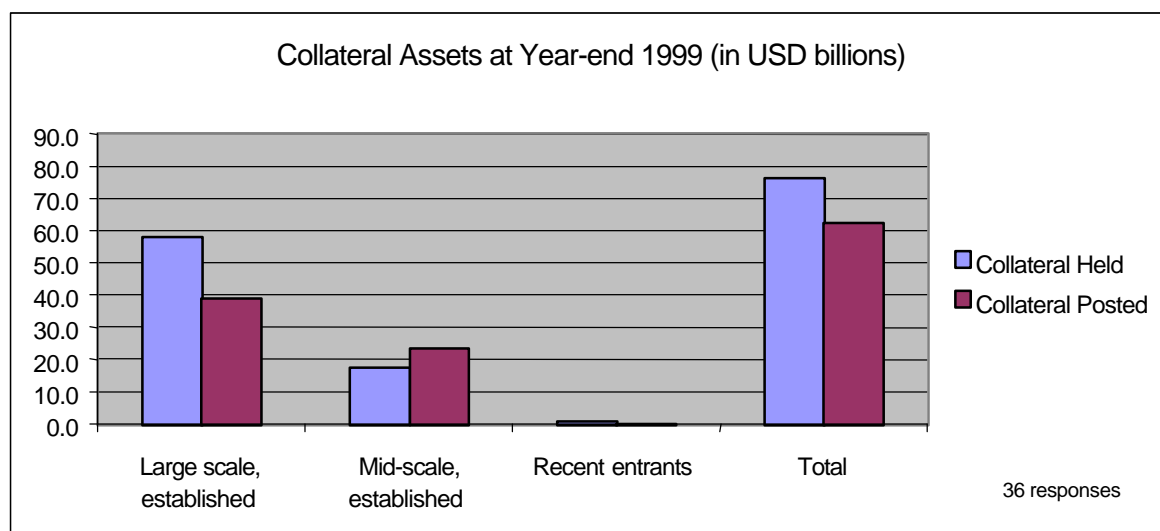
Other than cash, the assets most widely accepted as collateral continue to be U.S. Treasury securities and certain liquid securities issued by U.S. government-sponsored entities, such as the Federal National Mortgage Association (FNMA), the Federal Home Loan Mortgage Corporation (FHLMC) and the Government National Mortgage Association (GNMA).

Following the launch of the single currency in January 1999 and the continued expansion of collateralized trading within Western Europe, European government securities are now being more commonly viewed as acceptable collateral with 63% of respondents willing to give and 78% respondents willing to accept this collateral type.

Many participants limited their definition of acceptable collateral to those assets considered as market standard and most liquid. However, many participants also consider requests to accept or pledge other assets on a case-by-case basis. The key considerations relate to the asset's liquidity and historical volatility and ensuring access to timely and independent pricing information.

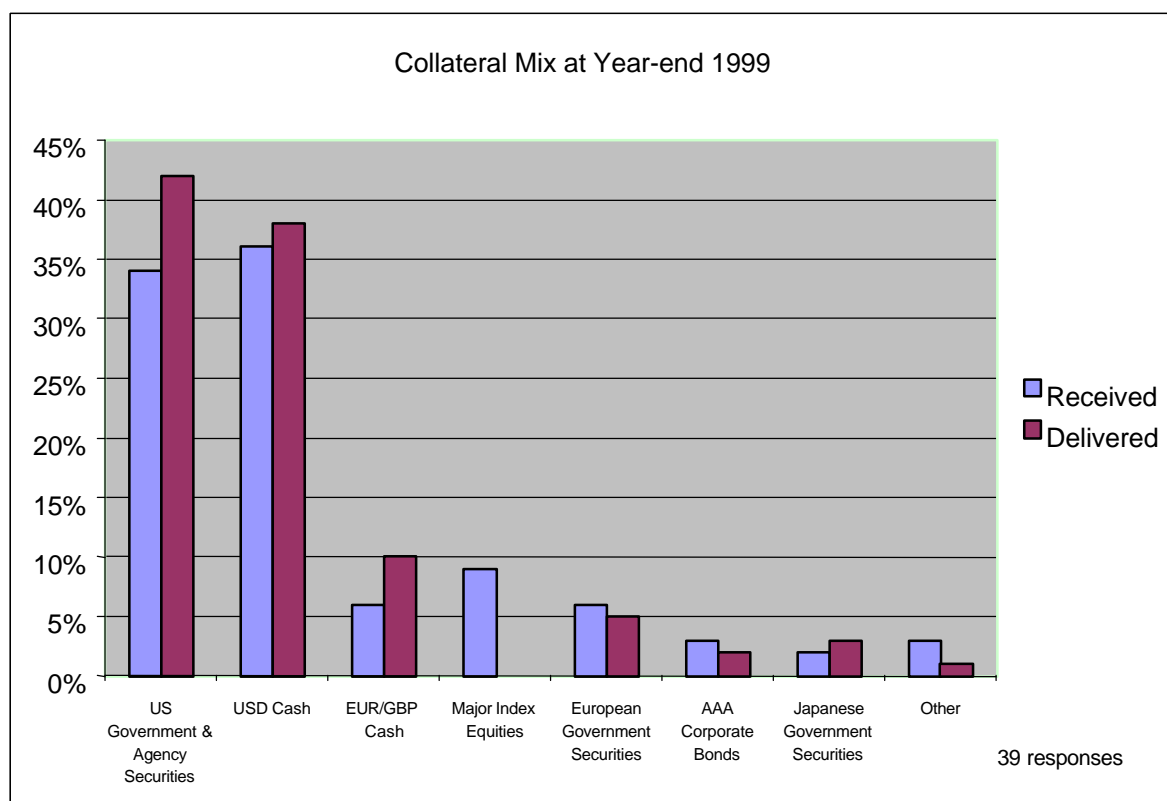
At year-end 1999, the total collateral held by respondents was USD 76 billion compared to USD 62 billion of collateral given out.

## ISDA Collateral Survey 2000



However, there is a clear concentration of collateral assets within the large scale established institutions. They handle nearly USD 100 billion of collateral, comprised of USD 58 billion in assets held and USD 39 billion of assets posted or 72% of all collateral outstanding.

The *ISDA 1999 Collateral Review* contained an estimate of the total value of collateral in circulation across the privately-negotiated derivatives industry at the end of 1998: this figure was in the range USD 175 to USD 200 billion. The 46 ISDA Collateral Survey 2000 participants have now specifically reported some USD 138 billion of collateral in circulation at the end of 1999. If it is assumed that these 46 respondents represent 70-80% of the total outstandings, the earlier estimates would be valid. It should be noted that there are large U.S. Swiss, and French institutions, in addition to smaller institutions in all regions, that declined to participate in the survey. This would support the 46 institutions responding as representing 70-80% of the market.



The concentrations in both USD cash and US Government securities reflects the continuing attractiveness of such highly liquid assets as acceptable collateral across the industry. In addition, standardization of collateral is also helpful for those organization who actively re-use collateral to ensure that the maximum value is derived from any collateral received.

The use of major index equities as acceptable collateral largely reflects continuing growth in the use of equity derivatives where such equities provide a natural hedge.

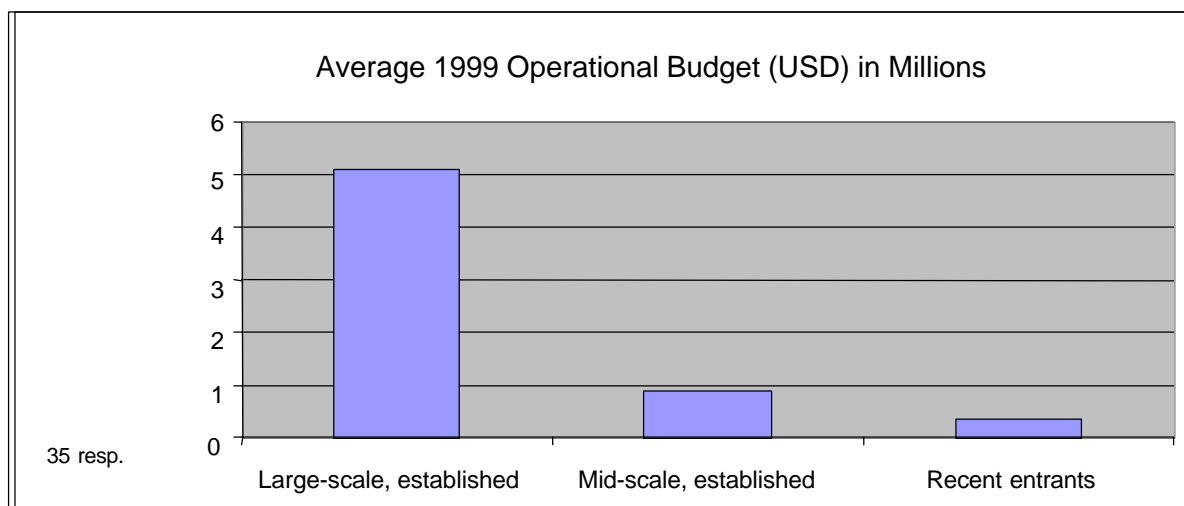
During the 3<sup>rd</sup> and 4<sup>th</sup> quarters 1999 a marked trend toward increased use of cash collateral was noted. This was initially attributed to potential Y2K considerations but these cash positions have remained in place through 1<sup>st</sup> quarter 2000. Looking forward, some practitioners feel that this trend will accelerate since, for many institutions, cash remains the cheapest form of collateral and is easier to move than securities. Cash also requires a less complex infrastructure as it minimizes any valuation issues and is free from corporate actions and other special considerations applicable to securities.

## CHAPTER 4 - COMMITMENT TO COLLATERAL MANAGEMENT

Significant financial and staff resources are required to develop the systems and operational infrastructure for an effective collateral management program. The large scale established firms had an average operating budget of USD 5 million in 1999 while mid scale established firms had an average operating budget of USD 880,000. A significant portion of budgets in all categories of firms is devoted to technology development and systems support, with the majority of dollars going towards systems development, underscoring the need to continually upgrade and improve existing systems. As firms expand programs, well-trained staff is required as well, with some programs employing more than 27 individuals.

### 4.1 Expenditures

For those participants able to identify a specific operational budget for collateral management, there is a wide range of responses from as low as USD 30,000 to as much as USD 10 million.

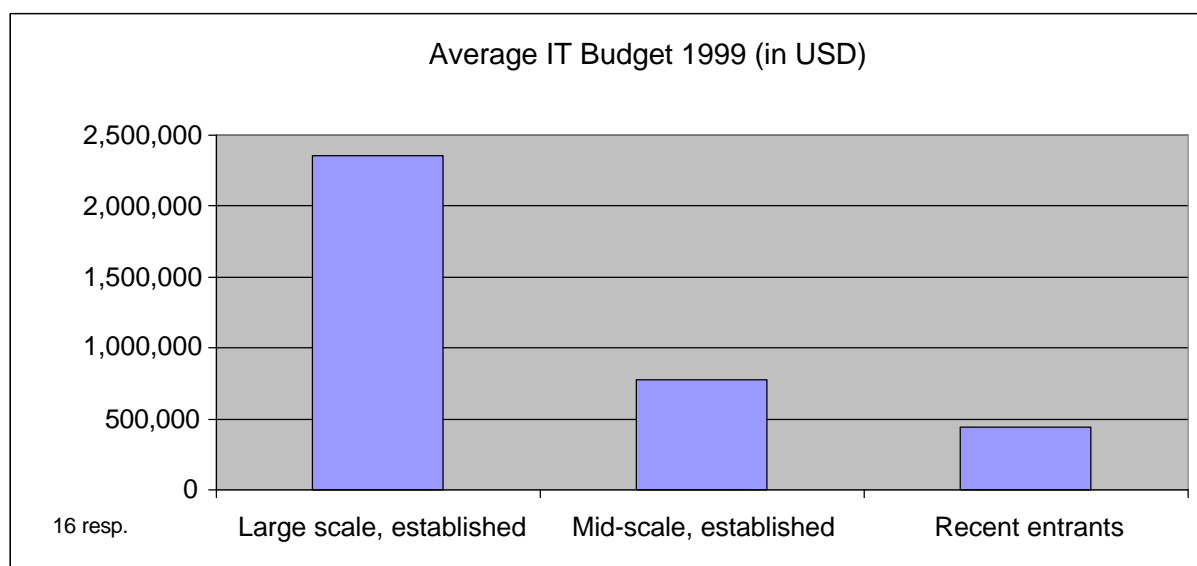


The average operational budget for 1999 by category was:

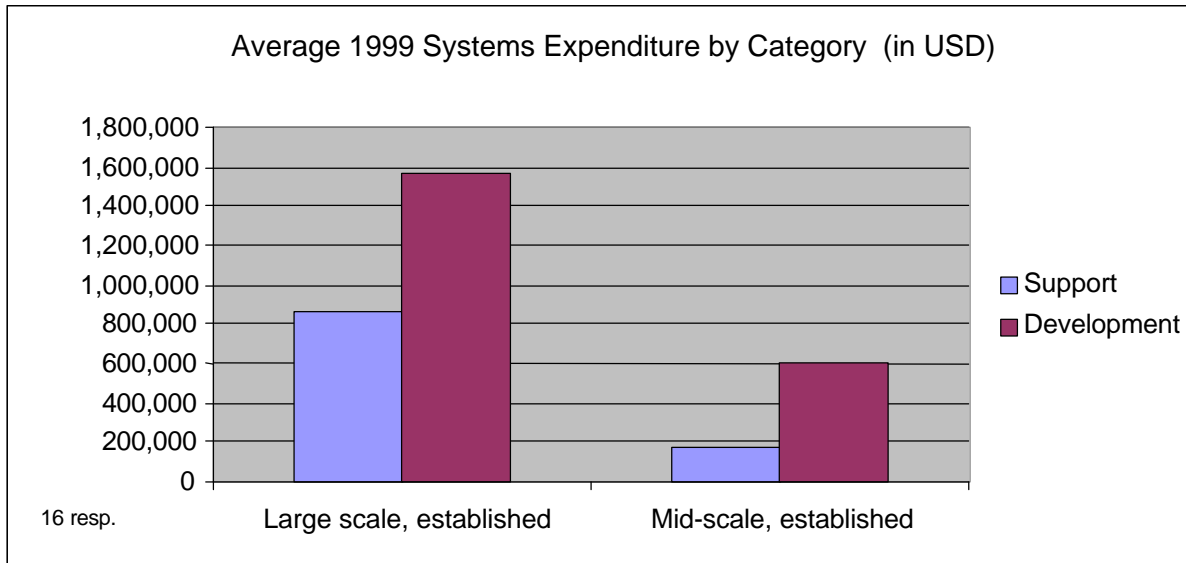
- Large scale established                      USD 5,079,000
- Mid scale established                         USD 880,000
- Recent entrants                                USD 350,000

When expressed as ‘operational budget per agreement’, the operational spend remains substantially different between large-scale and mid scale established players: USD 4,600 and USD 6,400 respectively. This discrepancy reflects the rewards from continuing investment in technology by the large scale established firms, as well as economies of scale accruing from the fact that large players manage six times as many agreements on average as mid-sized players.

In terms of the systems budgets for collateral management, while only around 30% of the participants supplied information, the data reveals a significant gap between the large scale established firms and the others. Large scale established firms have an average IT budget of \$2.4 million annually, whereas the mid scale firms average \$770,000 and the recent entrants \$440,000 per year.

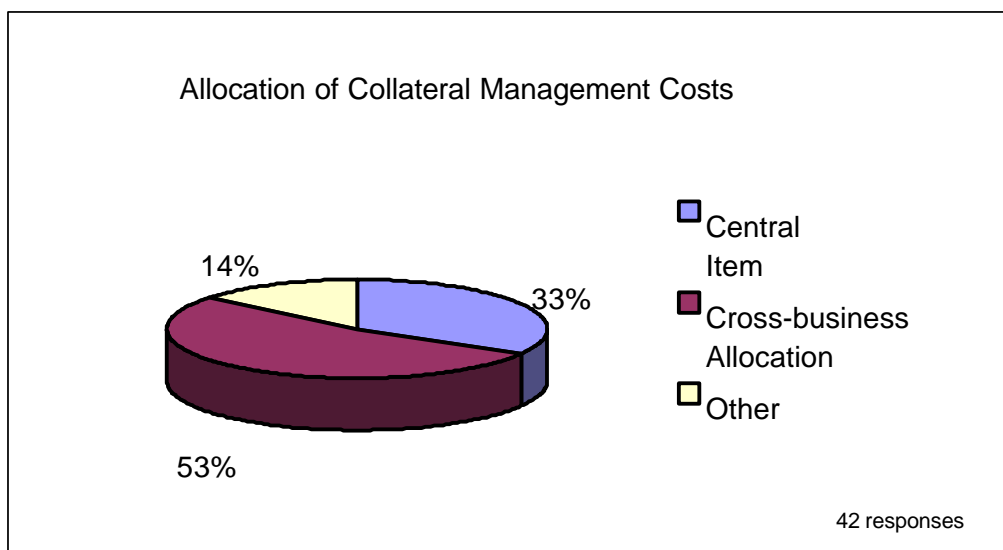


One should note, however, that the average first year IT budgets for recent entrants probably reflect staggered start dates during the year. Projections for 2000 are heavily weighted toward the recent entrants (+ 185%) and the mid scale established (+ 399%) relative to the large scale established firms (+ 38%).



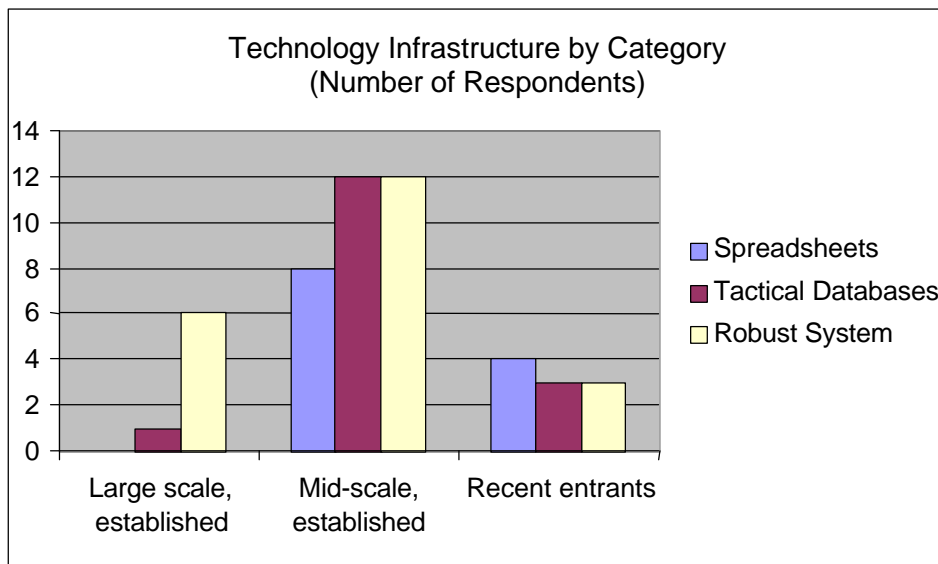
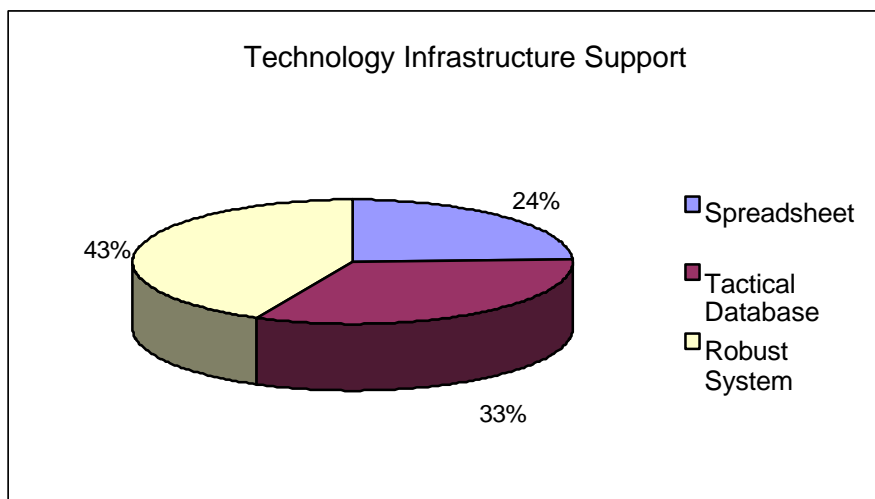
While large-scale, established firms allocate substantial dollar amounts of their IT budgets to systems development (an average of USD \$1.5 million out of a total of USD \$2.4 million), the mid-scale firms spend a larger proportion of their budgets on systems development (78% vs. 63% of total IT budget).

It has traditionally been believed that firms implement a collateral program with costs being absorbed as a central item during the initial phases, and 33% of respondents indicated that this was the case. However, there is a clear trend amongst the more established firms to utilize a cross-business cost allocation methodology. Currently 53% of respondents assign costs at the business unit level.

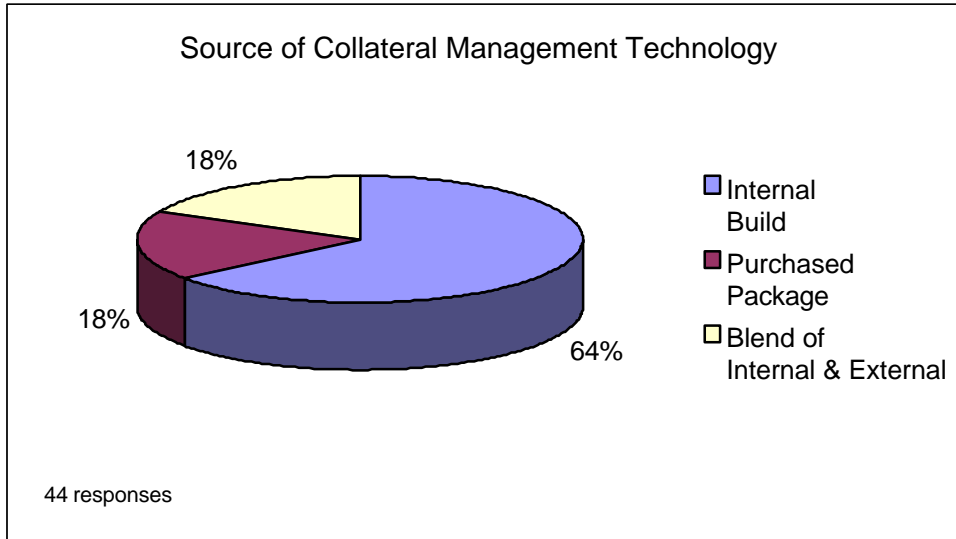


## 4.2 Technology Support

In terms of technology support, over half the respondents are relying on a combination of spreadsheets and tactical databases to operate their collateral programs, while 43% have robust systems.

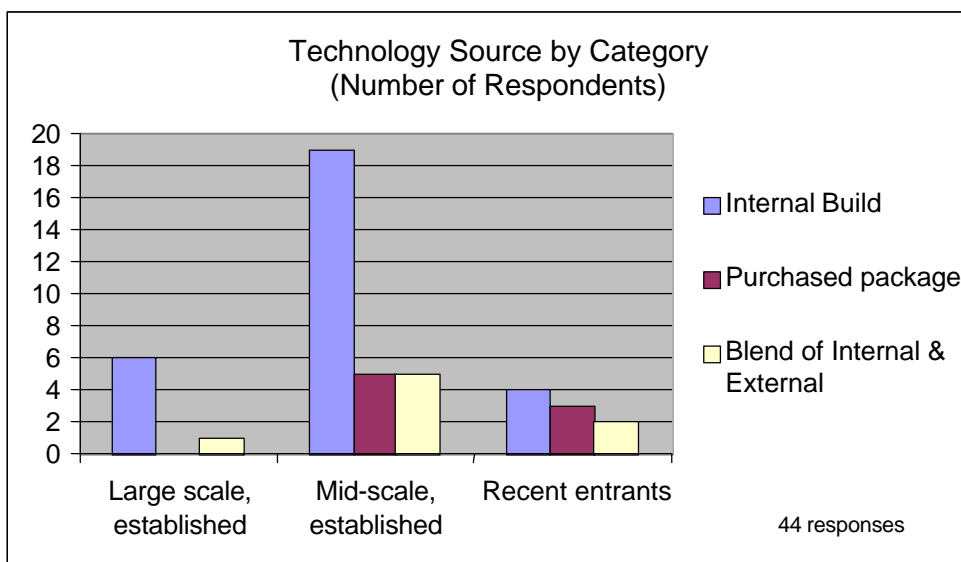


When compared to the very substantial variations in staff headcount reported by individual firms (see section 4.4), it is apparent that even amongst the 43% of participants claiming to have a robust system, there is considerable variation in the degree of automation and amount of manual intervention required to maintain an effective collateral program.

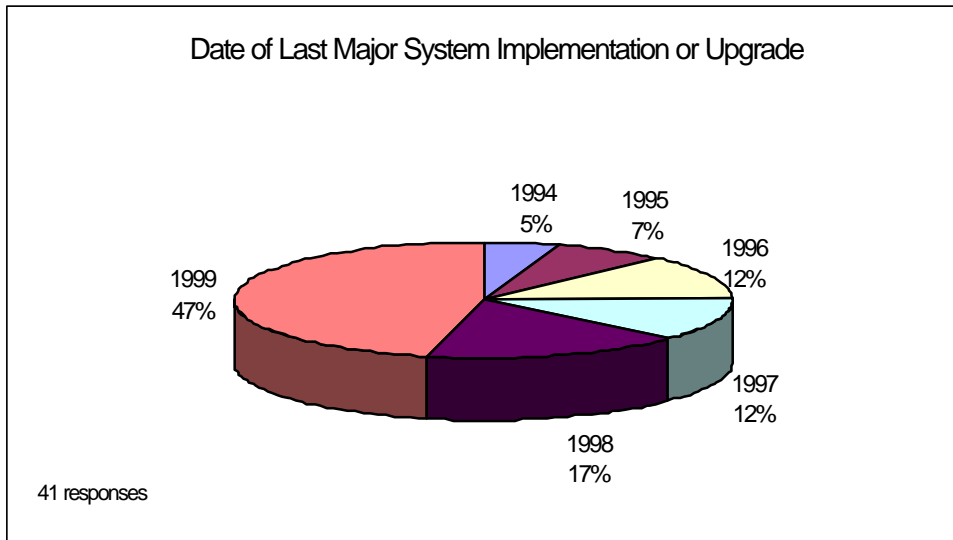


Many firms begin collateral management by implementing in-house developed systems based on spreadsheets or databases. Almost two thirds (64%) of respondents built their own systems while the remaining institutions were evenly split between purchased packages and a blend of internal and external systems.

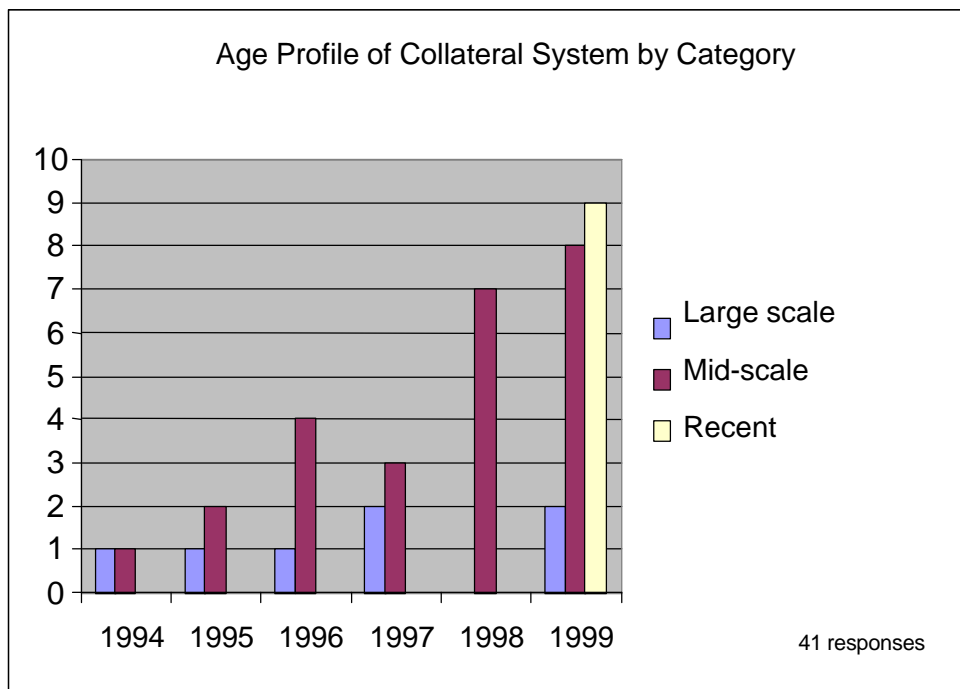
However, firms across all categories opted to build their own systems indicating that the packages may require so much customization that they are not cost-effective.



Over 60% of participants indicated that they had either implemented or upgraded their collateral system within the last two years, with nearly half having done so in 1999.



Among the large scale established firms, the relatively high ongoing investment in systems development noted previously is reflected in regular major system upgrades.



### 4.3 Data Sources

In terms of data sources, while some 69% of participants reported the need to handle 6 data feeds or fewer, the largest number of data sources reported was 142.

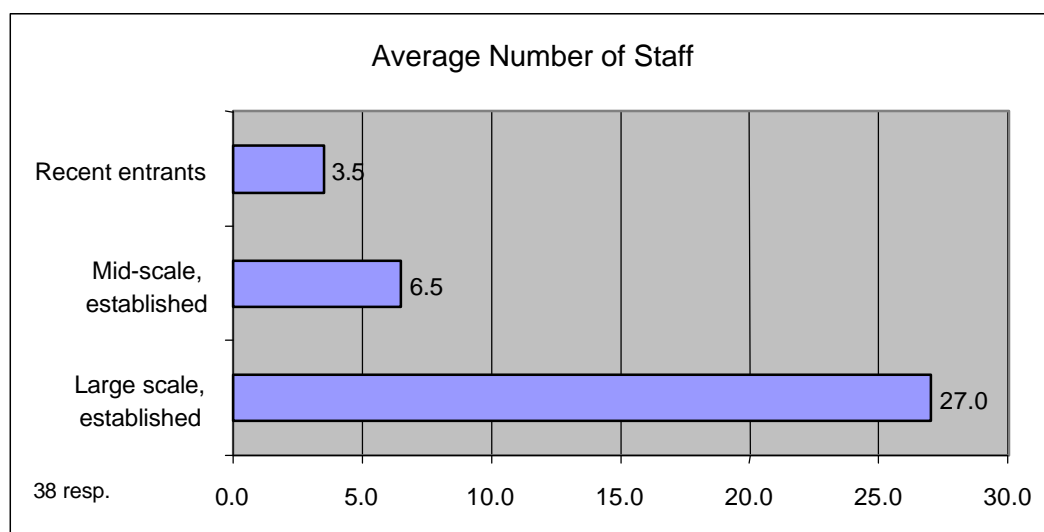
Number of data sources:	
Fewer than 6	69%
6 to 10	11%
11 to 20	10%
20 or more	10%
	100%

The wide disparity in the number of data feeds reflects the different sizes of respondent institutions, with larger institutions generally, but not necessarily, handling a higher number of data feeds to accommodate a wider range of instruments. A large number of feeds does not imply efficiency or inefficiency, but in principle it *may* increase the probability of errors.

Some 66% of the feeds are automated and a further 10% require manual data entry. The continued reliance upon spreadsheets and other uploads for the remaining 24% of the data is in many cases unavoidable, but it does represent an ongoing requirement for expensive manual intervention. Automated technology solutions are becoming a high priority for market participants to achieve project expansion with effective controls and minimal costs.

### 4.4 Staffing and Resource Availability

Given the mix of institutions participating in the survey, it is perhaps not surprising that there was considerable divergence in the staffing levels from very low levels up to a maximum of 68. The majority (78%) of staff is considered professional, not clerical.



For those institutions responding, two thirds of the staff earned between \$40,000 and \$80,000. Some respondents indicated that salary levels were being reviewed upward in line with demand, and that there were significant problems in recruiting and retaining appropriately experienced staff.

Salary Distribution	>=\$100k	13%
	\$80-99k	9%
	\$60-79k	20%
	\$40-59k	47%
	<\$40k	11%

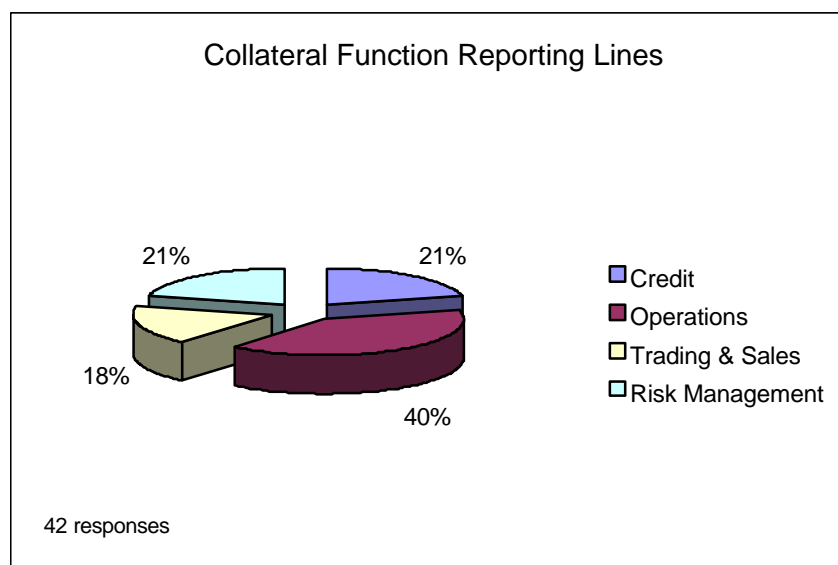
While the average in 1999 was 28 agreements per employee, at one firm it went as high as 154 agreements per employee. There was also a significant difference in the average for mid scale established respondents (22 agreements per employee) and the large scale established programs (40 agreements per employee). The degree of automation in place, the volume and complexity of transactions being collateralized, the stage of development of the collateral program as well as the number of locations manned all help to explain such variances. Within the large scale established institutions, despite the challenges of operating in a global and regional structure, there is clear evidence that the willingness to invest in new technology has enabled them to be significantly more efficient in handling substantially higher numbers of agreements than mid scale established firms. In addition, there are clearly economies of scale in terms of adding new agreements without adding staff. Conversely, recent entrants and smaller programs require a core number of staff regardless of the number of signed agreements in order to negotiate bilateral documentation, develop policies and procedures, as well as monitor agreements, make collateral calls, and review performance.

### 4.5 Reporting Lines

Over half of respondents identified a single reporting line, which in 65% of the cases was to Operations, leaving 45% of respondents acknowledging multiple reporting lines in one way or another: here too, Operations is cited as one of the reporting lines in half the cases.

Among the large scale established firms, 5 out of 7 cited a single line to Operations, and only one firm indicated a dual reporting line, suggesting that more established entities tend to narrow down to a single reporting line.

Regional units were only seen in 20% of the respondents, typically the larger institutions operate a hub-and-spoke arrangement.



### 4.6 Key Performance Measures

Respondents indicated that key performance measures increased in number and complexity with the maturity of their programs.

For recent entrants, the most common performance measures are the number of active agreements, capital savings and increased trading volumes. More established firms at the next stage of development typically have performance measures that address some or all of the following:

- Expansion into new markets
- Cost base
- Data quality
- Time-to-set-up for new agreements
- Impact on reserve management
- Operational risk
- Legal risk
- Liquidity risk
- Correlation risk levels in the portfolio

Finally, for the most sophisticated firms, additional measures are defined to include:

- Sourcing efficiency for outgoing collateral (i.e. how much can be met through re-use of collateral that we have taken in).
- Cross marketing of other traded products facilitated by collateral

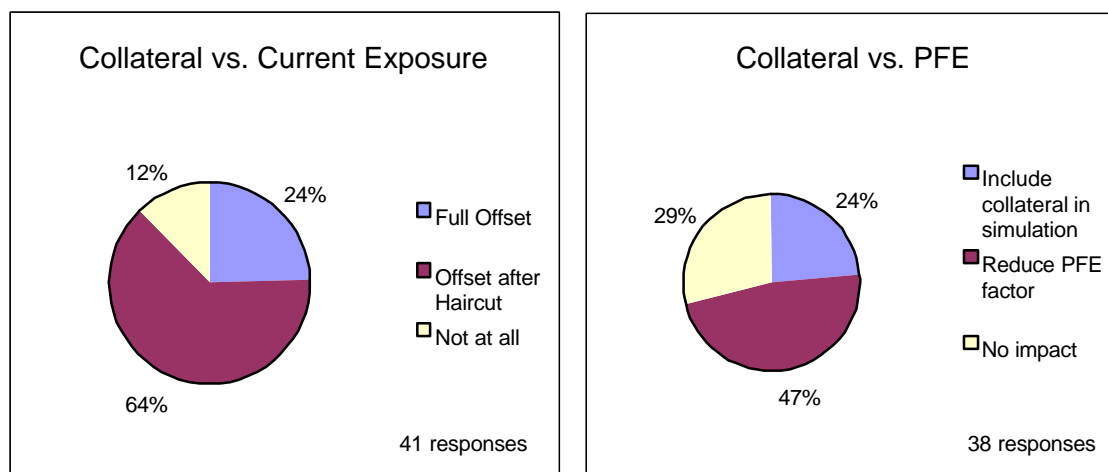
## CHAPTER 5 - RISK MANAGEMENT

**Institutions have made considerable progress in the active risk management of collateral portfolios with most conducting regular reviews of portfolio composition, issuer risk, liquidity risk, correlation risk, payments and settlement risk, and data and systems risk. When reviews are not regular, it is usually because the collateral being held is predominantly USD cash and U.S. government securities which mitigates the risk. In some cases, the complexity of the necessary quantitative analysis hinders implementation.**

### 5.1 Credit Analysis

It is important to understand that collateralization (like other risk mitigation techniques) should complement, not replace, credit analysis. The *ISDA 1999 Collateral Review* indicates that credit analysis should focus on:

- ❑ Traditional measures such as current credit exposure, potential future exposure (PFE) 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.



While 12% of the participants reported that current credit exposure for collateralized counterparties continues to be expressed and monitored in purely gross terms (i.e., there is no formal recognition of collateral in the current credit exposure), 88% of the respondents do give a full or post-haircut offset credit. In addition, 75% of the respondents do include some recognition of collateral in potential future credit exposure. It should be noted, however, that in a minority of institutions these practices are not yet implemented which is cause for concern.

While a number of participants have clearly developed advanced risk management capabilities, it appears that the information emerging from these sophisticated measurement systems is not always applied to the collateral management process.

Failure to measure credit exposure without proper recognition of the credit enhancement benefits obtained through collateralization may result in some banks having operational difficulties in convincing the credit committee and credit officers to grant the substantial credit lines sought by the front-office for some of the key liquidity providers.

## 5.2 Managing the Risks

It is important that institutions review all aspects 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.

### a) Portfolio Composition

While 55% of institutions are actively addressing the composition of collateral portfolios, there remain 28% without a review process.

	<b>A Limits set and monitored</b>	<b>B Regular review</b>	<b>C No process</b>	<b>No Answer</b>
Review of the composition of the collateral portfolios	<b>22%</b>	<b>33%</b>	<b>28%</b>	<b>17%</b>

Given the concentration of posted collateral into USD cash and U.S. government bonds, many firms thought collateral portfolio composition reviews were unnecessary.

However, experience suggests that even operating exclusively in such highly-liquid assets, collateral concentrations can occur, giving rise to potential issues if realisation of the collateral is required.

### b) Issuer Risk Review

While 55% of the institutions do review issuer risk, 28% indicated they do not have a process in place.

	<b>A Limits set and monitored</b>	<b>B Regular review</b>	<b>C No process</b>	<b>No Answer</b>
Review/management of the issuer risk of the collateral portfolio	<b>22%</b>	<b>33%</b>	<b>28%</b>	<b>17%</b>

Again, given the concentration of posted collateral into USD cash and U.S. government bonds, many respondents thought such reviews were unnecessary.

As the definition of acceptable collateral is widened to accommodate expected increases in the number and type of counterparties able to enter into collateral arrangements, the emphasis on active management of issuer risk will also grow accordingly.

**c) Liquidity Risk Review**

While 43% of the respondents have at least some process in place, it is perhaps surprising that at least two out of five respondents have no process in place to manage liquidity risk in their collateral portfolio.

	<b>A Limits set and monitored</b>	<b>B Regular review</b>	<b>C No process</b>	<b>No Answer</b>
Management of the liquidity risk of the collateral portfolio	<b>17%</b>	<b>26%</b>	<b>39%</b>	<b>18%</b>

Presumably, such organizations either rely exclusively on cash collateral or are confident that the choice of highly-rated government bonds as eligible collateral will provide the necessary degree of comfort in the event of a counterparty default.

**d) Correlation Risk Review**

Most institutions do not have a regular review process for correlation risk.

	<b>A Limits set and monitored</b>	<b>B Regular review</b>	<b>C No process</b>	<b>No Answer</b>
Review of correlation risk between collateral and the underlying derivative portfolio	<b>9%</b>	<b>20%</b>	<b>52%</b>	<b>19%</b>

The primary control seems to be applied during the negotiation of the documentation when the risk manager obtains a good understanding of the likely counterparty trading activity and ensures that appropriate collateral types are selected at the outset.

This result is to some degree unsurprising as much correlation management assumes reasonably advanced quantitative programs and a method to allocate back to collateral gives any restrictions on further acceptance of specific collateral types.

e) Payments and Settlement Risk Review

The latest market developments have shown settlement systems to be reasonably robust. However, despite globalisation, the increasingly diverse nature of local capital markets may have resulted in greater exposure to regulatory and political risks as local decisions may interfere with activity on individual exchanges and disturb normal settlement arrangements.

	<b>A Limits set and monitored</b>	<b>B Regular review</b>	<b>C No process</b>	<b>No Answer</b>
Review of the settlement risk of the collateral portfolio	<b>15%</b>	<b>39%</b>	<b>26%</b>	<b>20%</b>

By ensuring co-ordination between the collateral, payments and settlement functions, institutions can avoid paying out prematurely or not receiving in time.

	<b>Assume delivery made unless advised otherwise</b>	<b>Positively check for each delivery</b>
Monitoring of collateral deliveries	<b>19%</b>	<b>81%</b>

Four out of five respondents choose the prudent route of positive checking for collateral deliveries: in one instance, the reporting institution has given its custodian access to one part of the collateral management system so that receipts/non-receipts are updated directly.

Most collateral deliveries and returns are made "free" of payment, since the collateral is typically being moved to offset an exposure that has already arisen through the underlying derivative contracts. There is a danger that such "free" deliveries are considered to be of secondary importance to the more common "delivery-versus-payment" settlement activity in the fixed income and equities areas with the result that any settlement failures are not prioritised for remedial action.

Monitoring a counterparty's ability to make free deliveries may also provide an early warning of potential liquidity problems and allow sufficient time for the institution to assess whether its exposure to the counterparty should be wound down.

In a crisis situation, co-ordination among all areas making and receiving payments to and from counterparties provides a critical control over credit and settlement risk. Centralised control, either in credit risk or collateral management, ensures that the institution is best placed to take advantage of its knowledge or is able to react more quickly to market events. Such an approach is adopted by 80% of survey participants.

Given that there is no internationally agreed set of standards for the securities processing industry, it is encouraging to note that 50% of respondents do review custodian risk regularly.

	<b>A Limits set and monitored</b>	<b>B Regular review</b>	<b>C No process</b>	<b>D No Answer</b>
Review of the custodian risk of the collateral portfolio	<b>15%</b>	<b>35%</b>	<b>33%</b>	<b>17%</b>

Investors and banks that appoint custodians, for example, have no clear regulatory guidelines for assessing "good" and "bad" custodians. Many banks, however, are required to seek specific credit counterparty approvals for custodians on a case-by-case basis within a general policy guideline. This may, for example, set minimum external credit rating criteria for institutions acting in this capacity, thus potentially lessening the perceived need for stringent, ongoing reviews after an appointment has been made. Additional protections are also available from the specific wording and scope of the custody agreement negotiated with the custodian.

**f) Systems and Data Risk**

As with all operational areas, 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 in addition to centralization where possible.

Data sources are an area that can cause operational risk through inaccuracies and lack of timeliness. The following paragraphs address data source policies. NB: totals may exceed 100% given the ability to respond to more than one selection.

Not surprisingly, most banks sourced transaction data from either the front or back office.

	<b>A Data Warehouse</b>	<b>B Credit System</b>	<b>C Front-office</b>	<b>D Back-office</b>
Trade data source	<b>22%</b>	<b>15%</b>	<b>41%</b>	<b>39%</b>

Collateral presents a more difficult challenge than transactional data, in that there is an operational need not only to source information about *actual* assets held or posted as collateral but also about the much wider range of assets *potentially eligible* to be used as collateral. Typically, such data would reside with a data warehouse if there is one, and it comes as little surprise that respondents' use of a data warehouse for collateral is higher than the corresponding figure for trade data. Such a warehouse fulfills a data-management function, acting as a repository of potentially useful information, structured in such a way as to make that information accessible to all concerned parts of a firm. (It may, in addition, allow the development and maintenance of a historic time series, which may constitute part of that same database or else be stored separately.) A key advantage of a data warehouse is that it can gather together data from disparate sources and/or on a variety of issues that has been converted to a common format, and store it for use throughout a firm's various systems.

	<b>A Data Warehouse</b>	<b>B Credit System</b>	<b>C Direct from custodian</b>	<b>D Manually</b>
Collateral data source	<b>37%</b>	<b>13%</b>	<b>20%</b>	<b>30%</b>

Although the figure for manual entry of collateral data is high, it may be argued that reliance upon manual keying is superior to reliance upon an external custodian to track one's own collateral positions.

Nearly half of respondents utilise a documentation database to source the more relevant information required to administer the individual collateral agreements on a day-to-day basis. This raises the practical difficulty of putting complex legal data into a more generic data warehouse.

	<b>A Data Warehouse</b>	<b>B Credit System</b>	<b>C Documentation Database</b>	<b>D Manually</b>
Documentation data source	<b>15%</b>	<b>4%</b>	<b>46%</b>	<b>28%</b>

However, it is important that the collateral unit has access to copies of the full documentation in order to check that all the proper procedures are being followed and to resolve any disputes or other operational problems that might arise from time to time.

	<b>A Data Warehouse</b>	<b>B Credit System</b>	<b>C Direct from vendors</b>	<b>D Manually</b>
Market rates data source	<b>48%</b>	<b>4%</b>	<b>33%</b>	<b>13%</b>

Once again, most institutions choose either to take market information either direct from vendors such as Reuters and Bloomberg or via a data warehouse where this is available. The higher result than for Trade Data suggests that data warehouses, where they exist, are more readily used for rate and pricing data than for storage of transactional information.

Most banks continue to rely heavily on manual updates for counterparty data. While the majority of such data will be static reference data, there is a need for ongoing maintenance of certain counterparty information. In particular changes in credit quality, including ratings which can trigger changes in the thresholds, require more active monitoring.

	<b>A Data Warehouse</b>	<b>B Credit System</b>	<b>C Trading systems</b>	<b>D Manually</b>
Counterparty data source	<b>30%</b>	<b>26%</b>	<b>15%</b>	<b>33%</b>

Maintaining the highest possible standards of data quality is one of the most effective mitigants of the operational risks inherent in any collateral management function: 48% of respondents choose to rely upon monitoring portfolio reconciliations as an objective and independent measure of data quality. However, this does have some significant shortcomings versus regular day-on-day comparisons.

In particular, the need to rely upon portfolio reconciliations exposes the institution to the possibility of making spurious and unwarranted calls for collateral and, more importantly, of potentially failing to request collateral when due from its counterparties. Consequently, 48% of respondents perform some form of day-on-day comparison to provide a credibility check over the collateral system prior to commencing action calls, etc.

Only some 15% of organizations claim to have achieved straight-through processing (STP) from source, with no checks being required.

	<b>A Collateral desk in control</b>	<b>B Credit risk manager in control</b>	<b>C No explicit co-ordination</b>
At times of market stress, how well is the management of counterparty risk on payments and other settlement activities integrated with the collateral desk?	<b>30%</b>	<b>50%</b>	<b>20%</b>

### 5.3 Collateral Haircuts

The experiences of late 1998 highlighted the importance of reviewing internal methodologies to determine “haircuts” for collateral assets, and ensuring that appropriate volatility measures are considered over the appropriate timeframe when setting haircut levels.

Almost 40% of organizations indicated they had a volatility-based methodology for determining haircuts, only one of which had not reviewed this methodology over the last year. In view of a marked increase in market volatility over the last twelve months, firms generally wished to review haircuts to ensure that they remain competitive with other firms.

The most common haircut review methodology is based upon an exposure period of between 1 and 10 working days using observed historic market volatilities gathered over a rolling 6- or 12-month period at a confidence level set between 90% and 99%. Exposure periods were extended out if appropriate depending upon assumptions about the cure period and liquidity for the jurisdiction and asset, respectively.

However, only 15% of organizations have adopted a formal stress testing of such haircut levels on a periodic basis. This will be more important in the future, particularly if the trend towards accepting a wider range of assets as acceptable collateral becomes more pronounced.

One of the key consequences of widening the definition of acceptable collateral is that of determining appropriate pricing sources and ensuring that haircuts give adequate allowance for realisation in the event of counterparty default.

Many of those firms without such a methodology claimed that their ability to influence the market and negotiate such haircuts was limited. It was generally accepted that haircuts negotiated on a volatility-based method would be somewhat higher than current market levels.

### 5.4 Initial Margins and Other Static Amounts

Institutions were asked if they had internal policies for determining the circumstances in which initial margin should be required and a methodology for setting the required level of initial margin that was consistent with an institution’s risk appetite and the commercial situation in question.

An average of 66 agreements per respondent are subject to initial margins triggered by an external event, although one firm alone accounted for half this figure. Such a provision for initial margin is considered a 'belt and braces' option between professional counterparties and is generally only triggered by a severe fall in credit quality. However, it could not be determined which counterparty types were actually being required to post initial margin.

On average, some 20% of collateral agreements contain independent amounts of some type with hedge funds and corporates the most common counterparty types. Independent amounts are not commonly used, primarily because of client resistance and recognition that those counterparties for whom such amounts are most suitable are generally those least able to commit scarce liquid assets for such purposes. They are predominantly related to the credit quality of the counterparty.

Factors determining independent amounts	<u>Counterparty:</u>	
	Credit quality	56%
	Type	12%
	<u>Trade-related:</u>	
	Type	12%
	Volatility	9%
Tenor	2%	
Currency	5%	
Size	4%	

While independent amounts are not widely used, when they exist, there is almost an equal split between using a fixed amount or expressing the amount as a percentage of the notional principal amount of the underlying transactions:

Calculation Basis for Independent Amounts	% of Notional	52%
	Fixed amount	47%
	Trade tenor	1%

A wide majority (78%) of respondents actually nets the independent amounts with variation margin.

## **5.5 Setting Threshold Amounts and Triggers**

Collateral agreements can 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), as well as take into account the liquidity implications of unilateral credit support documents.

Threshold Basis	Fixed Amount	57%
	Ratings-based	26%
	Zero amount	16%
	NAV-based	1%

As ratings-based thresholds remain the most common form of threshold in existing agreements, many institutions now seek to incorporate ratings-driven minimum transfer amounts and initial margins as additional protections in the event of a reduction in the creditworthiness of their counterparty. Frequently, such arrangements can only be negotiated on a reciprocal basis.

Indeed, among the larger banks, there is a trend towards setting thresholds at the lowest achievable level commensurate with balancing operational efficiency and minimising the regulatory capital required for counterparty credit risk.

In the less developed jurisdictions, however, the continued use of large fixed thresholds remains popular as a method of compensating for shortfalls in operational infrastructure within many banks.

For many organizations, unilateral agreements are typically only sought from lower-rated counterparties or, less commonly, for individual transactions which are particularly volatile or large relative to the creditworthiness of the counterparty.

Unilateral agreements as a percentage of total	You receive	24% [on average]
	You post	2% [on average]

In practice, however, many institutions will not concede such unilateral arrangements on policy grounds except to certain sovereigns, supranationals or multi-lateral development banks that can effectively insist that all derivative trading be undertaken strictly on a one-way collateralized basis.

With financial markets becoming more global and inter-linked, regulators are concerned that such arrangements may lead to increased systemic risk in times of market stress. Hence, some regulators have negotiated informal trigger levels on the amount of collateral to be posted by banks for which they are primarily responsible. These restrictions may apply not only to those assets that have actually been delivered as collateral but, in addition, to any additional assets that would be required to be posted in the event of an immediate downgrade in the credit rating of the bank.

Due to the complexity of modelling, liquidity risk is the area with the least developed methodologies.

How do you monitor the impact of a rating downgrade on your liquidity?	Ad hoc report	33%
	Do not monitor	30%
	Simulation	22%

Although a number of participants positively verify external counterparty ratings on a regular basis to minimize the risk of being under-collateralized in the event of a counterparty default at the new lower rating, 35% of institutions rely upon their Credit Department to monitor such ratings downgrades and to inform the collateral unit as soon as the relevant information is available.

## **CHAPTER 6 - COLLATERAL MANAGEMENT POLICY, PRACTICE AND PROCEDURES**

**Most institutions have developed policies and procedures for operating their collateral management programs including guidelines for determining eligible collateral assets, valuation frequency preferences, hair cuts, roles and responsibilities, product and branch coverage, reuse of collateral, etc.**

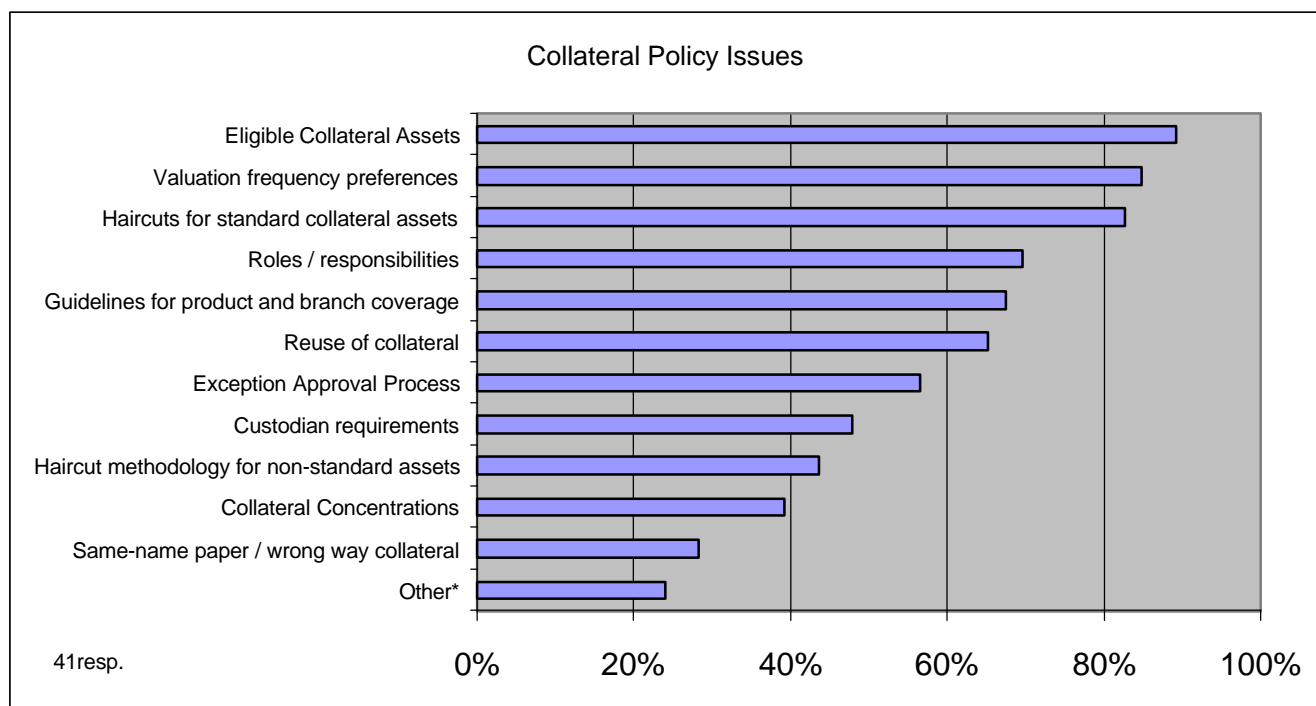
**While daily valuation of counterparty exposure has been achieved for the less complex products, the practice needs to be expanded across all transaction types. However, 75% of margin calls are effected on a daily basis.**

**Dispute resolution and reconciliation remain the major challenges for collateral managers.**

**Cross-product collateralization continues to grow with almost 50% of the collateral programs supporting repo and OTC derivatives, and 81% of respondents supporting the concept.**

### **6.1 Collateral Policy**

There is clear evidence that over 80% of the responding institutions have developed policies for many aspects of collateral management including determining eligible collateral assets (89%), valuation frequency preferences (85%), and haircuts (83%). A majority have also developed policies on roles and responsibilities, product and branch coverage, and re-use.



- The “Other ” category includes a range of policy guidelines on topics ranging from guidelines on the choice of legal agreement, through to interest rate basis on cash collateral and suggested criteria for negotiating threshold, minimum transfer and independent amounts.

## 6.2 Key Operational Considerations

Respondents were asked to indicate a key wish they would like to see fulfilled. Responses pertaining to operational issues included:

- Restructuring the Credit Support Annexes as a simple, standardised boilerplate document to be signed along with the first transaction to avoid having to deal with long-form confirmations with collateral provisions and protracted negotiation.
- Developing more flexible technology to support the more complex structures seen in the market.
- Implementing a more practical dispute resolution procedure, such as a standard electronic protocol or other matching mechanism.
- Accessing a larger pool of talented and knowledgeable people in the collateral market. Expertise is currently hard to find and expensive to recruit and retain.
- Standardizing interest payments on cash.

### 6.3 Exposure Valuation

It is generally accepted that for an effective risk management process, firms should develop an infrastructure capable of achieving a daily revaluation of counterparty exposure. Responses indicate that this standard has been more effectively implemented for less complex products (interest rate and currency), while the more problematic areas include emerging markets (30%), commodities (30%) and credit derivatives (39%).

	Interest Rates	Equities	Emerging Markets Mkts	Commodities	Currency	Credit Derivatives
More than once per day	2%	4%			2%	2%
Daily	78%	50%	30%	30%	70%	39%
Weekly	7%	9%		4%	7%	7%
Semi-monthly	2%	4%			2%	
Monthly	4%	4%	2%	4%	4%	4%
Not disclosed or N/A	7%	29%	68%	62%	15%	48%

Indeed, daily revaluation of exposure is one of the specific criteria established under the Basel guidelines for banks to obtain regulatory capital savings against counterparty credit risk where eligible collateral has been posted.

However, a fair number of firms have not yet achieved the necessary level of infrastructure as evidenced by low reported transaction revaluation frequencies and margin call frequencies. This results in many sub-optimal collateral agreements being signed whereby the regulatory capital savings have been foregone, although the exposed party may feel more comfortable trading on a collateralized basis.

### 6.4 Disputes and Dispute Resolution

The average number of 39 disputes per month (2 per working day) reflects a wide spread of responses - up to a maximum of 500 per month (i.e., 25 per working day reported by one participant).

Disputes were attributed to:

Dispute causes:	
Missing trades	36%
FX and other rate differences	24%
Valuation timing differences	23%
Valuation methodology differences	17%
	100%

Nearly two thirds of disputes are attributed to factors that relate to absence of standardised timing and valuation methodologies, pointing towards the usefulness of central services providing single-point valuations.

Not surprisingly, most participants claim to maintain accurate trade records themselves, while booking mistakes by the counterparty are cited as a common source of dispute such that the average number of errors admitted by respondents is only half the number claimed.

The average number of failed collateral receipts remains low at 5 with a maximum reported figure of 28 per month.

Only 57% of participants effectively conduct a full trade-by-trade reconciliation before a collateral agreement is executed. Given the known issues surrounding valuations, it is of some concern that 43% enter into agreements "blind" on Day One.

Frequency of subsequent reconciliations	When there is a dispute	59%
	When a call/return is made	15%
	Monthly	15%
	At least twice a year	11%
	Quarterly	4%
	More frequently	2%

As expected, over half the participants perform reconciliations when there is a dispute. However, other regular, periodic reconciliations are also considered necessary to ensure that appropriate data quality standards are achieved on an ongoing basis.

Failure to carry out such interim reconciliations may expose an institution to increased credit risk through failure to call margin when due. For example, most counterparties will be quick to take advantage of increased thresholds available on a ratings upgrade, but are not under any duty to volunteer additional collateral that has not been formally requested by its counterparty through either operational, valuation or booking errors.

A number of participants indicated that the lack of a robust automated reconciliation environment was the single most important operational issue for the market to address. This was considered essential as the market moves towards more global collateral management arrangements which can emphasize problems across time zones.

The majority of participants distributed portfolios by e-mail, while fax continues to be used widely, particularly for smaller portfolios.

Distribution method for portfolios	
e-mail	54%
Fax	46%
Diskette	17%
Post	9%

In 2000, respondents expect to see more use of web-based solutions whereby counterparty and client portfolios are made available for download on demand. Some 17% of participants expect to have access to web-based reporting by the end of 2000.

One fifth of participants indicated that they had an automated reconciliation process. However, many participants generally relied upon data transfer and use of spreadsheets or PC-based database tools to facilitate more timely portfolio reconciliation.

### 6.5 Consistency

One of the issues highlighted in the *ISDA 1999 Collateral Review* was the need to apply the terms of collateral agreements consistently in order to ensure greater predictability. However, 43% of participants reported not adhering strictly to the agreed contractual terms. A variety of reasons were offered, most commonly:

- Informal disputes over calls and valuations were resolved by reconciliations requiring a longer period of time than stipulated in the agreements.
- Small portfolio differences are not fully reconciled as per the legal agreement; some differences are split for operational expediency, with regard to counterparty creditworthiness.
- Many substitution requests are presented same-day rather one day in advance. This is most common among those respondents who manage their collateral portfolios more actively.
- Interest-rate calculations on cash collateral are frequently undertaken in line with local market practice.

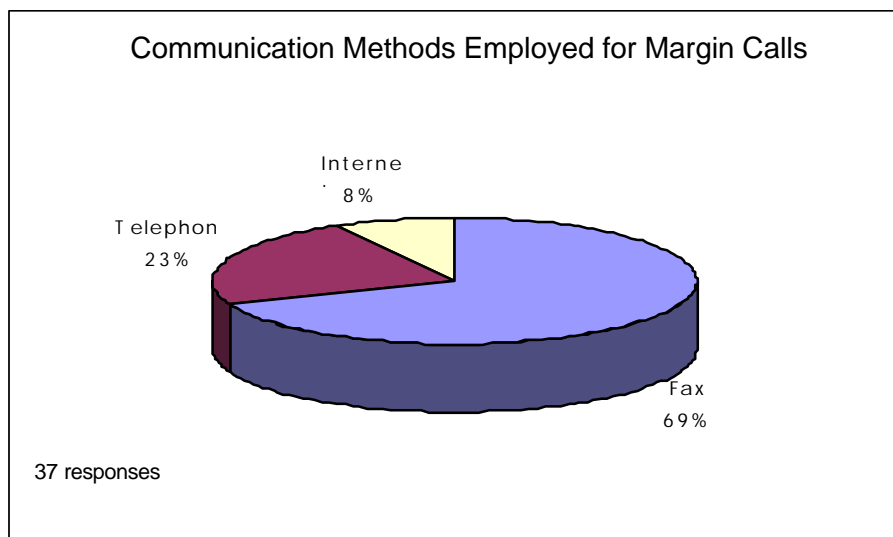
- Operational problems in obtaining timely data on agreements with counterparties based in other time zones.

## 6.6 Margin Calls

Collateral management depends to a large extent on the frequency with which margin calls are made. It is therefore satisfying to see that nearly three quarters of margin calls are effected on a daily basis.

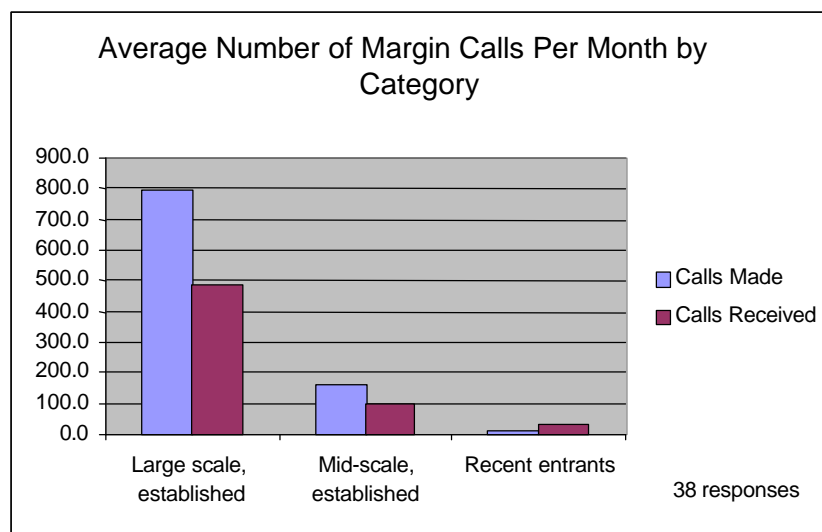
Daily	74%
Weekly	17%
Every 2 weeks	2%
Monthly	6%
Quarterly	1%

While the more established collateral groups reported that ad hoc calls between scheduled valuations were being made, in many cases a counterparty would have problems in agreeing a valuation outside its own standard reporting frequency, and the actual delivery of additional margin was delayed. Conversely, one major firm cited an internal analysis that showed little additional protection against risk was achieved by going from weekly to daily margin calls given the existence of cure periods.



In terms of methods used to communicate margin calls, while use of the Internet is still in its infancy, there is potential for a significant increase in its use in the medium-term. Interestingly enough, the Internet, when used, is via web-based interfaces rather than the more readily available e-mail facilities. Fortunately, no traffic by mail or courier was reported.

However, many banks remain uncomfortable with reliance upon a web-based approach in the absence of clear legal opinions that calls made in this manner are legally binding.



The average of margin calls made and received each month reflects a wide range of responses up to a maximum of 1300 per month. Given that the number of such calls is largely a function of the number of collateral agreements in place, it is not surprising that the large scale established category has the highest reported activity with 800 calls made and 500 calls received on average. Similarly, given that this category tends to include many valuation agents and/ or operates many one-way client agreements, one would expect to see more margin calls made than received by the large scale established institutions.

The average of 29 substitutions initiated each month reflects a wide range of responses from 1 to a maximum of 140 per month with no clear conclusions possible.

## 6.7 Relationship Between Collateral Management and Other Units

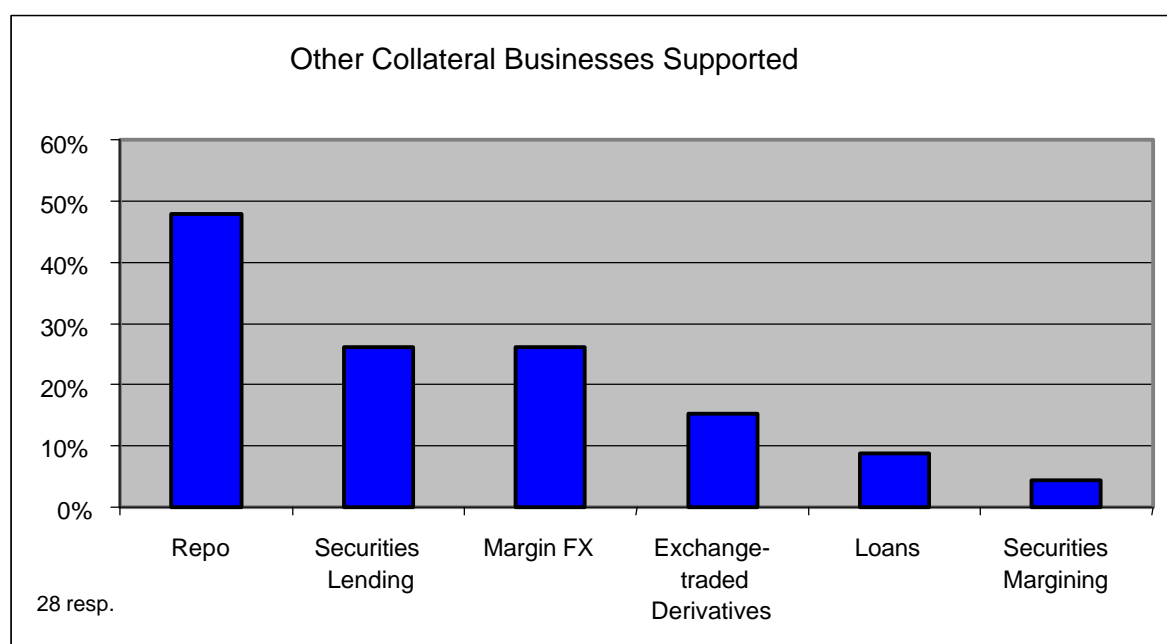
An overwhelming majority (85% of respondents) had a global collateral function. While most units were responsible for institutional clients, only 17% had dealings with private clients.

Some differences were noted in terms of scope with respect to OTC derivative products:

OTC derivatives products supported by the Collateral Management Unit	Interest-rate	89%
	Currency	83%
	Equity	70%
	Credit Derivatives	57%
	Emerging markets	39%
	Commodities	35%

In most institutions each of these businesses will generally have been traded and managed as discrete business units with dedicated support teams established within IT and the back-office.

This legacy of discrete operations is a function of the local trading and settlement practices developed within each market and is still commonly reflected in the use of separate market standard documentation packages for each product.



Bringing together OTC derivatives and repo is the most common first step towards a single, cross-product, global collateral function and is the most immediate step to support a rehypothecation program, and almost 50% of respondents have implemented programs that support repo and OTC derivatives. In fact 81% of the respondents supported the concept of permitting cross-product netting and collateralization, a goal which ISDA is working to achieve with revised master agreement and credit support documentation. No single participant claimed to cover all the areas identified above.

Although there are strong economic links between OTC derivatives and exchange-traded derivatives, only minor synergies exist today between these two areas at the collateral management level because exchange clearinghouses do not accept a wide range of securities as margin.

## ISDA Collateral Survey 2000

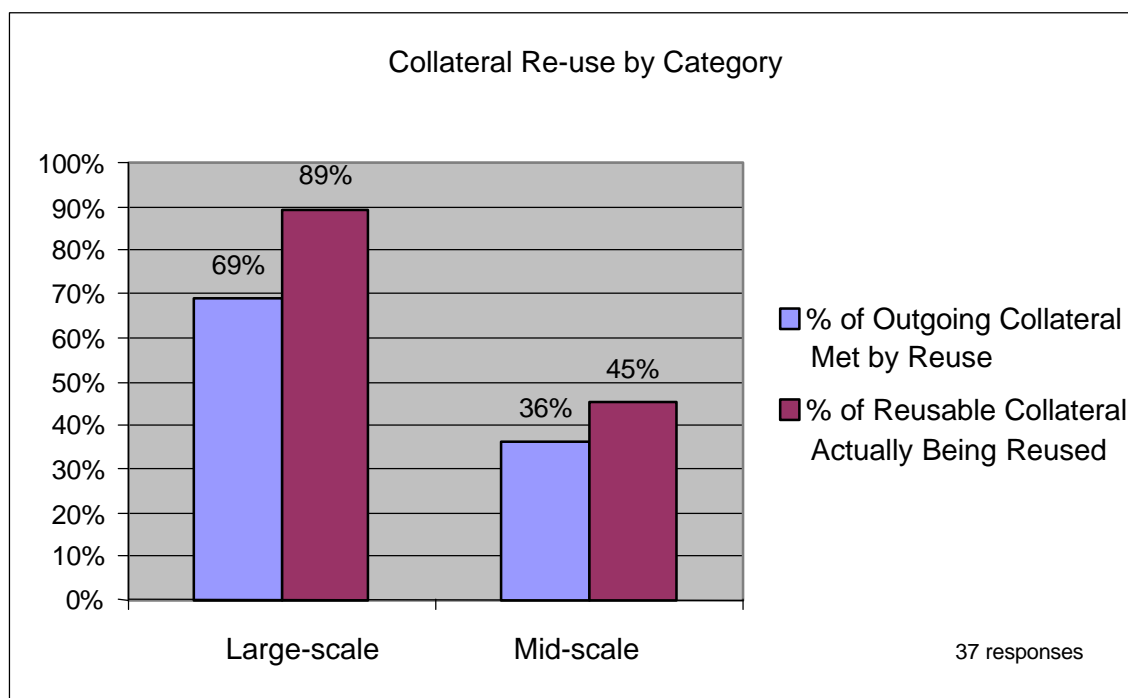
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As the table below indicates, 58% of effort expended by collateral management units revolves around the direct day-to-day operation of the collateral function, while “growing the business” in the form of negotiating new agreements and developing systems accounts for another 16%.

<b>Functional Areas Covered by the Collateral Management Function</b>	<b>% effort expended</b>	<b>If not your group, which area of your firm handles?</b>
Making collateral calls	14%	
Performing reconciliations with counterparties	10%	Either operations or in collateral unit
General management	9%	Shared with credit, and other senior management
Negotiating collateral agreements	8%	Usually within legal department, but subject to overview by risk management
Collation of transaction valuations	8%	Operations
Systems development	8%	IT departments
Valuation of collateral assets	7%	Back office or market risk
Managing settlements	7%	Usually undertaken in back-office
Managing interest payments/ coupon payments/corporate actions on collateral assets	6%	Fixed income operations
Setting policies related to collateralization	5%	Internal audit, and credit
Performing reconciliations with custodians	5%	Settlements
Managing/optimising collateral inventory	4%	Front-office, generally on Repo desk or Treasury funding desk
Marketing and education (internal/external)	3%	Credit and business management
Making coupon payments or other payments on underlying transactions	3%	Back-office or operations
Producing daily P&L	2%	Middle office or financial control area
Other	1%	

## 6.8 Rehypothecation and Re-Use

Some 83% of participants negotiated rehypothecation as part of their pledge-form agreements irrespective of whether the institution currently intended to take advantage of it.



However, there was a clear segmentation in the market on the point of those organizations that actually make use of this option. On average, large scale established organizations successfully redeploy 89% of the reusable collateral received. It should be noted, however, that since many of the mid scale established and new entrants are in Europe the difference may be due to the use of different documentation. European counterparties may be signing an English Law Title Transfer Annex which obviously allows for reuse, but not rehypothecation, since the legal position is different.

Those institutions that had the appropriate infrastructure, generally sought opportunities to re-use incoming collateral to the maximum extent possible when legally permissible. On average, at year-end 1999, some 69% of outgoing collateral was met by re-use of collateral held among large scale established institutions

The purposes cited for re-using collateral in excess of meeting outgoing collateral requirements effectively highlight the growing interaction between funding and collateral operations:

Repo Market	46%
Liquidity support	30%
Taken to a centralised pool	22%
Margin for exchanges and clearing houses	17%
Other	7%

However, 23% of participants stated they did not reuse collateral as at year-end 1999. They were unable to take advantage of such opportunities either because of legal uncertainty or a lack of the necessary infrastructure and tracking capability.

### 6.9 Liquidations

As might be expected, only in very few instances has a collateralized counterparty liquidation occurred. During the last year, the number of such liquidations reported was 11, although it is likely to be an over-estimate of the actual number of counterparties involved since the same counterparty may have had collateral agreements in place with more than one survey participant. In general, collateral agreements continue to prove to be very robust with problems arising only when controls break down.

The only instance reported where an agreement failed completely was when it had not been set up properly in the collateral management system. This is, of course, not a failure of collateralization per se but of the internal operational controls and infrastructure within that particular institution.

In other cases, delays were experienced in resolution which, coupled with market volatility in the cure period, contributed to a collateral shortfall upon realisation.

## CHAPTER 7 - LEGAL ISSUES

**Legal uncertainty is still a major concern of institutions collateralizing transactions around the globe. It is critical that each institution understand its potential exposure regarding the enforceability of netting and collateral agreements, which they do through the ISDA opinions, in-house legal review, and with outside counsel as well.**

**The lack of harmonization of laws and regulation regarding collateral hinders the growth of collateralization in many areas, specifically in Europe. ISDA's European Collateral Law Reform Project is working with the European Commission to achieve harmonization in the future.**

### 7.1 Legal Enforceability of Collateral Agreements

It is critical that institutions understand the enforceability of their collateral agreements in a range of jurisdictions for a range of product and customer types. The globalization of one derivatives business presents institutions with a significant hurdle in terms of understanding local idiosyncracies and enforceability.

One of the most difficult areas for global financial institutions operating on a cross-border basis is determining which jurisdiction's law applies to which aspect of a collateral arrangement. This is reflected in the table below which indicates the importance of researching enforceability of the collateral agreement in the counterparty's home (80%), the jurisdiction of the contract (65%) and the counterparty's branch (57%).

In which jurisdictions do you consider it is important to research when signing a CSA?	Counterparty's home	80%
	All C/P's branches	57%
	Custodian	59%
	Sub-custodians	24%
	Law of contract	65%
	Other	2%

To comply with regulatory guidelines to obtain regulatory capital relief for collateralized arrangements, many banks are already required to obtain, and periodically refresh, written external legal opinions on both netting and collateral enforceability within each individual jurisdiction.

In addition, for those counterparties who fall outside the scope of the jurisdictional opinion, separate specific legal opinions are usually required on a case-by-case basis. For example, hedge funds established as partnerships within tax havens frequently fall outside the generic jurisdictional opinion, which relates to incorporated bodies only.

From whom do you obtain legal advice?	ISDA opinion	34%
	In-house counsel	35%
	External counsel	31%

Even though many feel collateral agreements are robust and rely upon ISDA's generic opinions as a safety net, a fair amount of investigation is undertaken before signing a new CSA.

### 7.2 Collateral and Netting Opinions

ISDA currently publishes four standard forms of credit support documentation: the Credit Support Annex subject to New York law; the Credit Support Deed subject to English Law; the Credit Support Annex subject to English law; and the Credit Support Annex subject to Japanese law (referred to collectively as the "ISDA Credit Support Documents"). The ISDA Credit Support Documents (and, in particular, the English and New York law-governed forms) are very widely used in documenting bilateral collateral and other credit support arrangements between counterparties to transactions governed by ISDA Master Agreements.

Recognizing the importance of legal enforceability of collateral arrangements, ISDA began in 1997 to obtain opinions from external counsel in a number of jurisdictions on the enforceability of the credit support arrangements set out in the English and New York law-governed forms of the ISDA Credit Support Documents.

To date, such opinions have been acquired from counsel in Belgium, Cayman Islands, England, France, Germany, Hong Kong, Japan, Korea, Luxembourg, Singapore, Switzerland, Taiwan, Thailand and the United States. Opinions for Canada, Indonesia and Malaysia are nearing completion. Opinions from Italy, the Netherlands, Portugal and Spain are under consideration. Additionally, the Association plans to commission collateral opinions from Australia, Austria, Bermuda, Denmark, Finland, Ireland, the Netherlands Antilles, Norway, South Africa and Sweden in 2000. These opinions are made available (along with regular updates) to ISDA's members. It is also increasingly common for individual institutions to establish similar, and often more extensive, opinion gathering projects.

The ISDA collateral opinions address issues that may arise when establishing and maintaining or seeking to enforce collateral arrangements with a counterparty that is organized or located in the relevant jurisdiction, has assets in that jurisdiction or where the collateral has a strong connection with that jurisdiction. In providing their opinion, local counsel is requested by ISDA to consider legal and administrative issues concerning:

- the creation, perfection and recognition of interests in credit support;

- ongoing action that must be taken to ensure the continuing perfection of interest in credit support;
- duties of care concerning credit support;
- the effect of rights of substitution on interests in credit support;
- the enforcement of rights, both in the absence of, and following an insolvency procedure (including issues of priority of claims and preferences);
- choice of law issues; and
- possible recharacterization risk arising from the use of an outright title transfer approach to credit support;

Each of the ISDA Credit Support Documents follows the same principles for determining the amount of credit support to be delivered or returned. The net mark-to-market value of the transactions under the ISDA Master Agreement to which the ISDA Credit Support Document relates is determined at agreed intervals, based on the amount that would be payable by one party to the other if all transactions were terminated in accordance with Sections 5 and 6 of the ISDA Master Agreement. Since the amount of credit support is calculated by reference to net mark-to-market values, it is important that the parties to a collateral arrangement have a high degree of certainty about the enforceability of netting in all relevant jurisdictions. To promote certainty in this regard, ISDA has obtained opinions from external counsel on the enforceability of the termination provisions set out in Sections 5 and 6 of the ISDA Master Agreement in 34 jurisdictions. Again, these opinions are updated regularly and made available to ISDA members.

### **7.3 An Assessment of Regional and Country Challenges**

Respondents provided valuable insight into the issues that they faced when doing business with counterparties operating in specific countries or regions. These constraints apply not only to local participants but to any institution operating in the country or region being discussed.

#### **Canada**

In Canada, some banks reported problems since banks and many other entities are often prohibited from entering into collateral agreements, or have restrictions on the amount of assets that can be pledged. As a result, only a small number of collateral agreements exist in Canada.

Consequently, there is more reliance upon alternative forms of credit enhancement such as the use of single-swap Mark-To-Market agreements, "recouping" and other credit enhancement techniques.

### **United States**

The United States is generally the most advanced market with respect to collateral management practices. Nevertheless, respondents identified several outstanding issues inhibiting collateralization in the U.S.

Within the institutional market, there is concern over the length of time required to complete the documentation. Most commonly, this is due to heavy workloads within an institution's legal department. A second issue, of particular relevance for cross-border transactions, was continuing legal uncertainty over the most appropriate form of agreement - pledge vs. outright transfer. In some cases, this has resulted in counterparties signing two, parallel one-way agreements, one of each form, to mitigate their respective concerns.

Specific market segments experience particular barriers including insurance companies, smaller banks and corporates. Insurance companies pose a range of issues, which are becoming more critical as their use of derivatives expands and their business activities diversify. At issue are factors such as whether local state regulations allow insurance companies to enter into derivatives, and whether they recognize netting and collateral enforceability.

Finally, in the rest of the United States end-user market (including small banks, corporates, and utilities) the biggest barrier is typically that only a few dealers currently price for credit and ask for collateral as a matter of course. This is changing gradually, however, and some end users are beginning to initiate the discussion on collateral in order to manage down their credit risk. These organizations are also subject to the common issues of weak or absent infrastructure and an inability to cope with frequent valuations. Also, in many cases Treasury operations personnel (who are expected to manage collateral) lack a robust understanding of derivative valuations and collateral management practices.

### **Caribbean**

No significant problems were reported, primarily as most Caribbean counterparties are hedge funds that routinely operate on a collateralized basis.

Some limitations do occasionally arise with respect to enforceability of netting and collateral with partnership structures in certain jurisdictions.

### **Central and South America**

The survey indicated that there was movement toward the acceptance of collateral in the Latin American market, especially in Mexico, Argentina, and Brazil. This is attributable to the growth in the use of derivatives in the region, and the fact that many institutions will no longer engage in transactions with high-risk elements, such as lower counterparty credit rating, longer duration, and currency exposure, without collateral.

However, there are some barriers to doing collateralized business in Latin America. First of all, netting is not recognized in most Latin American jurisdictions, which generally increases the amount of collateral that parties are required to pledge, relative to a similar counterparty in a netting-friendly jurisdiction. Collateral enforceability for OTC derivatives in Latin American countries is also an issue, especially since the legal position has been rarely, if ever, tested in court.

A final issue in Latin America is the limited access to commonly preferred collateral assets - G7 cash or government securities. Access to such assets can be difficult or prohibitively expensive. Assets that parties can obtain more easily are often too closely correlated with the underlying exposures to be regarded as acceptable collateral.

### **Western Europe**

The main barriers in Europe relate to processing infrastructure. Many counterparties, even some larger banks, have difficulty including all OTC derivatives products and all branches in their agreements. Some parties also have difficulty with review frequencies that are weekly, daily, or exposure-driven. This may lead to the parties having to agree to a sub-optimal frequency, such as monthly or quarterly, in order to secure an agreement.

A further set of issues in Europe relates to the legal complexities of collateralization. The legal treatment of collateral and netting varies significantly across jurisdictions, and simply gaining a detailed understanding of the laws and translating that into commercial practice is an enormous effort<sup>4</sup>. Some jurisdictions either do not recognize collateral or netting in insolvency proceedings, or collateral perfection procedures may be especially onerous. For example, in Spain it is required that a pledge of assets be notarised, which is a cumbersome operational process. Recent developments, such as new netting legislation in Italy, were generally seen as evidence that collateralized business should be easier in the future. In addition, regulatory barriers, such as the extension of capital adequacy benefits in Germany only to local law agreements, can create difficulties.

A final issue in Europe has to do with language barriers. Many regional banks and corporates do not have access to the appropriate linguistic skills in collateral management roles, and recruiting resources with such skills can be difficult and impractical in all but the largest organizations.

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<sup>4</sup> The ISDA European Collateral Law Reform Group has prepared a separate report on *Collateral Arrangements in the European Financial Markets*. In addition, Country Reports for the fifteen Member States of the European Union are available directly from ISDA.

### **Eastern Europe**

Eastern Europe broadly experiences the same issues that prevail in Western Europe, although they are typically more pronounced. Eastern European counterparties are less familiar with the concept of collateral, and their derivatives markets are still evolving, so infrastructure lags significantly. There are also issues of affordable access to USD or EUR denominated assets, so counterparties frequently desire the capability to post assets in their local currency.

Significant effort is required to educate clients about the collateralization process.

### **Africa**

Within Africa, there are significant legal uncertainties in respect of netting and collateral enforceability within most jurisdictions. Generally, Africa is not seen as a priority area for most respondents.

South Africa is the only market in which survey participants reported activity. While this market is relatively advanced in its use of collateralization, the biggest issue is that many counterparties can only post Rand-denominated assets. These can be operationally cumbersome to manage (especially equity shares) and give rise to significant correlation issues.

### **Japan**

Collateral is still, for the most part, perceived as protection against weak credits. While this mindset is beginning to change, the market lags behind North America and Europe. Many of the counterparties lack the collateral know-how and systems that can support an efficient collateral practice. Hence, those respondents with Japanese agreements have been required to enter into sub-optimal agreements - excluded transaction types, monthly valuation frequencies, high thresholds, etc.

### **Asia Pacific (excluding Japan)**

There are many regional obstacles to overcome before the many opportunities for collateralization can be developed.

Legal confidence in the enforceability of collateral and netting, as well as the client's understanding of collateral and the credit support documentation vary widely throughout the region. While some clients are usually willing to work through the issues, especially where having collateral is a pre-requisite for trading, the process can be very protracted and frequently results in sub-optimal agreements due to limited access to preferred assets and lack of client sophistication. Typically, counterparties resist collateral as an unnecessary additional cost to doing business.

In particular, the countries of Emerging Asia, namely China, India, Indonesia, Thailand and the Philippines, have serious problems with netting and collateral enforceability.

Banks and security houses in Australia and Singapore are, however, generally regarded as being more sophisticated in their approach to collateral

### 7.4 Regulatory and Legal Harmonization

ISDA remains committed to urging the harmonisation of the laws and regulations that impact the collateral function, and has engaged in several projects to achieve this goal, most notably in Europe.

Use of collateral in connection with financial transactions is growing rapidly in Europe. However, differences in law and administrative requirements across the European Union (the “EU”) concerning collateralized transaction represent an unnecessary barrier to that growth.

In 1998, ISDA submitted to the European Commission’s Strategy Review Group a paper calling for action to address these differences. In February 1999, ISDA formed the European Collateral Law Reform Group to formulate a case for improving the legal infrastructure for secured transactions across the EU. As the group’s work has progressed, it has become apparent that there are issues to be addressed in virtually every EU jurisdiction, and possibly at the EU level regarding legal impediments to the efficient use of collateral:

- cumbersome and impractical rules hampering implementation of pledge collateral arrangements
- cumbersome and impractical rules hampering enforcement of pledge collateral arrangements
- legal restrictions on the use of pledge collateral by the secured party
- uncertainty regarding the enforceability of title transfer collateral arrangements
- uncertainty under existing conflict of laws rules as to which law applies to key aspects of the collateral arrangement, including enforcement
- vulnerability of collateral arrangements to the rights of third parties
- vulnerability of “top-up” deliveries of collateral under mark-to-market collateral arrangements to avoidance under preference and similar insolvency rules

Working in a co-ordinated fashion with both the European Central Bank and the European Commission, ISDA has produced a report on the need for law reform across the EU<sup>5</sup> and has set about promoting key principles that an effective and efficient modern legal regime for collateral arrangements should embody to the relevant authorities, including national central banks. These principles are as follows:

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<sup>5</sup> ‘Collateral Arrangements in the European Financial Markets – The Need for National Law Reform’ available at [www.isda.org](http://www.isda.org). The ISDA European Collateral Law Reform Group has also prepared country reports on each of the fifteen Member States of the European Union.

- **Appropriate Rules:** rules and procedures for implementing and maintaining a collateral arrangement should be simple, clear and cost-effective.
- **Reduction of Formalities:** cumbersome formalities such as registration, notification, filing and similar requirements should be abolished.
- **Ability to Reuse Collateral:** a collateral taker should be free to deal with the collateral until it is required to return it.
- **Protection from Insolvency:** a giver of pledge collateral (a pledgor) should be protected from the insolvency of the taker of that collateral (the pledgee).
- **Choice of Law:** the law governing the creation and priority of the collateral arrangement should be the law chosen by the parties. Where no law has been chosen by the parties, the governing law should be the law of the place where the collateral is held, collateral held through an intermediary being deemed held where the intermediary maintains the account, register or other official record representing such collateral.
- **Clarification of Status:** the legal nature of a party's holding of securities in a clearing system should be clarified.
- **Protection Against Third Parties:** collateral arrangements should be protected from the rights of third parties.
- **Protection Against Preferences:** "top-up" deliveries of collateral under mark-to-market collateral arrangements should be protected from avoidance under preference and similar insolvency rules.

The European Commission and the European Central Bank have both demonstrated support for a more harmonized collateral regime for Europe and collateral features as a high priority action point in the Action Plan agreed by EU Finance Ministers in May 1999. In September, the European Commission established a consultative Forum Group to study the issue further. ISDA continues to work with the EU institutions and the Forum Group going into the year 2000.

## CHAPTER 8 - FUTURE TRENDS

This section examines various trends shaping the business of collateral management and combines statements culled from the completed questionnaires and anecdotal commentary obtained from leading participants during the course of preparing the survey analysis.

That future points towards steady integration of the collateral management function with related functions within the firm (repos, securities lending, exchange margining, etc.).

The watchword must then be intelligent systems upgrades coupled with tighter, more cost-effective co-operation and connectivity between various areas within the firm and between firms, gradually enhancing the firm's proper understanding of risk, risk mitigation and, most importantly, residual risk net of mitigation.

### 8.1 Business Drivers

Many banks believe that, in the medium term, collateralized trading will become the standard way of trading in the derivatives markets globally, much as it is already the case in North America.

The development of an effective collateral management capability is key to the future growth and strategic ambitions of many firms within the OTC-derivatives markets.

#### □ Real-Time Settlement

The general industry move towards real-time settlement will provide additional liquidity with assets being redeployed on the same day, thus widening the window of opportunity to optimise asset usage.

It does, however, also imply a requirement for development of STP infrastructure so that settlement failures can be effectively managed as they occur. In particular, gaining access to multiple markets through consolidated entry points is a vital component for achieving high efficiency at low cost, particularly as the distinction between domestic and international securities and cash continues to blur.

#### □ Intra-Day Repo

Market developments favouring real-time cash and foreign exchange settlements are forcing banks to review their existing liquidity management techniques, opening the way toward intra-day repos.

#### □ Globalized Collateral Management

There is also a trend toward including traditional non-ISDA instruments, such as repurchase agreements, within a single master agreement which could net across both product and legal entity lines.

## 8.2 Technology Implications

- Web-based data exchange, communication and reporting: if a shorter time cycle for valuation, delivery and liquidation of collateral is to be achieved, then more innovative use of web-based technology is required to automate the communication of information between parties. In particular, growing use of the Internet to communicate margin calls, reconcile trade portfolios, and value exposures and securities positions is expected.
- Event-driven processing: in order to support development of STP within collateral management, the business requires all systems and processes to be moved from being batch-driven to a real-time event-driven environment.

## 8.3 Collateral Assets

Despite the planned expansion of eligible collateral types already under consideration as part of the Basel Capital Adequacy Consultative document, some market practitioners now predict a trend towards increased use of cash collateral.

### APPENDIX 1 – ISDA AND ISDA'S COLLATERAL WORKING GROUP

The International Swaps and Derivatives Association, Inc. (ISDA) is the leading global trade association representing professional-market participants in privately-negotiated derivative transactions. Privately-negotiated derivative transactions include interest rate, currency, equity, commodity and credit swaps, options and forward transactions, as well as such related products as forward rate agreements (FRAs), caps, collars, floors and swaptions.

ISDA, chartered in 1985, today numbers approximately 450 members from 34 countries around the world, of whom more than half are established in Europe. Of those established outside Europe, many, if not most, have significant operations in the European markets.

ISDA's members include most of the world's major financial institutions as well as leading end-users of privately negotiated derivatives and suppliers and consultants to the industry, including law firms, accountants and information technology companies.

ISDA's members have been using collateral to reduce credit risk in relation to privately-negotiated derivatives transactions for a number of years, during the course of which, through working groups composed of member experts, ISDA:

- Drafted and published forms of collateral documentation (Credit Support Annex or Credit Support Deed) under English, New York and Japanese law, together with User's Guides to those documents;
- Commissioned and distributed to its members legal opinions from a number of jurisdictions on the enforceability of those documents and continues to seek opinions from additional jurisdictions;
- Prepared and published its original Guidelines for Collateral Practitioners in November 1998 and an updated on issues relating to collateral management in the March 1999 *ISDA 1999 Collateral Review*;
- Continues to study collateral management with a view to improving standards and efficiency in the market, including reviews of market standard documentation, with a view to updating, clarifying and streamlining the documentation to enhance its usability cross-border;
- Initiates projects to harmonize legal and regulatory regimes such as the ISDA European Law Reform Group.

## APPENDIX 2 – ACKNOWLEDGMENTS

ISDA would like to express its gratitude to all the participants who made this research possible. The following sponsor institutions and their representatives gave generously, especially of their counsel and experience.

### Institution

ABN AMRO Bank NV  
Caboto Holdings FIM SpA  
The Chase Manhattan Bank  
Dresdner Kleinwort Benson  
Halifax Group Treasury and Wholesale Banking  
The Industrial Bank of Japan  
J.P. Morgan  
Merrill Lynch & Co.  
Warburg Dillon Read

### Representative

Robert McWilliam  
Marco Fiorentino  
Henry Cheever  
Katja Braumoeller  
Penny Davenport  
Teruo Tanka  
Michael Clarke  
Steven Rubel  
David Maloy

Some 46 organizations responded to the survey questionnaire. Without them, this report would not have been possible. ISDA and the Advisory Group thank the following institutions:

Abbey National Treasury Services plc  
ABN AMRO Bank NV  
Banca Monte dei Paschi di Siena SpA  
Banco di Sicilia SpA

Bank Brussels Lambert S.A. N.V.  
Bankgesellschaft Berlin AG  
Banque Nationale de Paris  
Banque Paribas  
Caboto Holdings FIM SpA  
CDC Marchés  
The Chase Manhattan Bank  
Citibank N.A.  
Commerzbank AG  
Crédit Agricole Indosuez  
Crédit Communal de Belgique  
Danmarks Nationalbank on behalf of the  
Kingdom of Denmark  
Deutsche Bank AG  
Deutsche Genossenschaftsbank AG  
Dresdner Kleinwort Benson  
European Bank for Reconstruction and  
Development  
Fortis Bank N.V. S.A.  
Fuji Capital Markets Corp.  
Goldman Sachs & Co

Halifax Group Treasury and Wholesale Banking  
HSBC Bank Plc  
The Industrial Bank of Japan, Limited  
International Bank for Reconstruction &  
Development  
J.P. Morgan  
KBC Bank  
Landesbank Baden-Württemberg  
Lehman Brothers  
Lloyds TSB Bank plc  
Merita Bank plc  
Merrill Lynch & Co. Inc.  
Morgan Stanley Dean Witter  
Nomura International plc  
Royal Bank of Canada  
Salomon Smith Barney  
The Sanwa Bank Limited  
  
Sanwa International plc  
Saudi International Bank  
Standard Chartered Bank plc  
The Swedish National Debt Office  
  
Tokai Bank Europe plc  
Toronto Dominion Bank  
Warburg Dillon Read

## APPENDIX 3 – BRIEF GLOSSARY OF SELECTED TERMS AS USED IN THIS REPORT

### **Agreement**

An arrangement between any two parties to post collateral where (the attainment of a pre-specified level of) credit exposure warrants this. Under an agreement, collateral may be liable to be posted mutually or as required by just one of the parties. Agreements are said to be ‘active’ once one or more transactions have been included in their scope. The totality of a firm’s agreements constitute a collateral ‘program’. In some instances, the collateral arrangement is managed by a third party, in which case the agreement is termed ‘tripartite’.

### **Collateral**

The generic term for property provided by one party to another to mitigate the transferee’s credit risk on the transferor. Sometimes also referred to as ‘margin’ [qv]. The term collateral derives from ‘collateral security’ (as opposed to the principal security, which in the old days would typically have been land and buildings). The term can be used to refer to security interest (see ‘pledge’) or title transfer [qv] arrangements. ‘Credit support’ [qv] is the term used in ISDA documentation for all forms of collateralization technique

### **Credit Risk Mitigation**

Any of a number of ways of systematically limiting the potential for loss due to credit risk. Collateral is a key form of credit risk mitigation, as are credit derivatives, guarantees and netting. See also ‘potential future credit exposure’, ‘risk – correlation risk’.

### **Credit Support Annex/Credit Support Documentation**

Credit support documentation is carefully designed to facilitate the establishment and maintenance of collateral agreements [qv] between parties in a legally robust and predictable manner. ISDA publishes four such forms of documentation, each appropriate for a different legal environment. These are the New York Law Pledge Annex, the English Law Transfer Annex, the English Law Credit Support Deed and the Japanese Law Annex. These are supported by annually updated reasoned legal opinion as to the enforceability of contracts relying on such documents in several jurisdictions around the world.

### **Database**

Collateral operations require particular forms of data to support them, notably in relation to eligible and posted assets, underlying exposures and the details of any agreements [qv]. This data can be entered into a normal commercial spreadsheet or, in a more structured and readily manageable way (particularly if the amount or complexity of data is greater), into a ‘tactical database’. (The denotation ‘tactical’ refers to the fact that the database is created especially for a particular business unit. ‘Data warehouses’, by contrast, are used as a central and more widely accessible repository of data, often taken from a variety of sources.) Some collateral units buy or build ‘robust systems’. Like tactical databases, these are dedicated software solutions adapted to the particular needs of that unit, but typically are more efficient at the rapid processing of large volumes of data.

### **Data Warehouse**

A data warehouse fulfills a data-management function, acting as a repository of potentially useful information, structured in such a way as to make that information accessible to all concerned parts of a firm. (It may, in addition, allow the development and maintenance of a historic time series, which may constitute part of that same database or else be stored separately.) A key advantage of a data warehouse is that it can gather together data from disparate sources and/or on a variety of issues that has been converted to a common format, and store it for use throughout a firm's various systems.

### **Haircut**

Any collateral that is eligible for posting is, as a result of market movements, liable to decrease in value relative to the exposure it is intended to secure. To counter this, dealers will typically assign less than full face value to that collateral. The amount by which the value assigned to the collateral is less than full face value is termed the 'haircut', usually expressed as a percentage of face value.

### **ISDA Instruments**

ISDA documentation covers a range of privately negotiated derivatives, collectively known as 'ISDA instruments'. This comprises interest rate swaps and options and derivatives referenced to credit, equity, energy and foreign exchange rates. A particular collateral arrangement may cover exposures arising from any or all of these and/or other financial transactions too. Further information about ISDA is provided in Appendix 1.

### **Liquidity**

1. See 'risk'.
2. Strictly funding or the ability to source funding. The ability or willingness to post collateral can help secure access to funding. In the context of the current survey, the term is used to denote access to financial transactions more broadly.

### **Margin**

Loosely, a synonym for 'collateral' [qv]. Particular usages include the terms: 'initial margin', which is collateral required to be posted at the inception of a transaction or relationship; 'margin call' – the process by which a party demands initial or further collateral, usually upon the passing of a credit 'threshold' [qv]; and 'cross-margining', referring to the joint collateralization of several exposures or classes of exposure. Also, 'margin' is commonly used with reference to collateral required by an exchange clearing house

### **Mark to Market**

The process of valuing an exposure (arising from future obligations) based on current market prices; top-up collateral is additional collateral provided by one party to the other as a result of changes in the mark-to-market value of the exposure and/or the collateral. See also 'margin', 'potential future (credit) exposure'.

### **Market Stress**

A period when asset values are suddenly and significantly depressed (**or otherwise dislocated**). In such a period, the benefits of effective collateral arrangements become particularly important.

### **Pledge**

A form of security interest granted by a party (the pledgor) over its property to another party (the pledgee); cf 'title transfer'; see also 'collateral', 'rehypothecation'.

### **Population**

Since the determination of whether collateral needs to be posted depends on the valuation of exposures, and since a given collateral arrangement may cover a number of different exposures, an important preliminary step is that the two parties to an arrangement agree on the list of underlying transactions that are to be valued at any given point of time. The composition of that list is referred to as its 'population'.

### **Potential Future (Credit) Exposure**

Once an exposure has been marked to market [qv], it is still naturally liable to increase in the future. At the same time, many collateral agreements [qv] are based on periodic transfers of security. Collateralization therefore often takes into account not only the current exposure but the potential for that exposure to increase between mark-to-market/transfer dates – the 'potential future credit exposure'.

### **Program**

See 'agreement'.

### **Reconciliation**

In the context of this survey, the process by which a firm checks that it agrees with a counterparty's 'population' [qv].

### **Rehypothecation/Re-use**

In its strict sense, this means the use of pledged [qv] assets by the pledgee to give as security for the pledgee's own obligations, this being subject to the original pledgor's rights to return of the property. It is also sometimes loosely used in a broader sense to mean use of pledged assets by the pledgee as if it owned those assets, for example, sale of the pledged assets by the pledgee to a third party. Even more loosely, it is used as a synonym of 're-use', for instance re-sale by the recipient of collateral under a title transfer [qv] arrangement.

### **Repo**

A transaction where one party sells securities to the other at the outset and the parties agree the other will sell securities of the same type at the same price back to the other party at a specified date in the future. Where the party selling the securities at the outset chooses which securities these should be, the transaction is a repo or 'securities repurchase' transaction and has the commercial effect of a secured loan; where the party buying the securities at the outset chooses which securities these should be, the transaction is a 'securities lending' transaction and allows the buyer to cover a short position in those securities.

### **Risk**

There are a number of risks associated with the establishment and maintenance of collateral programs. Credit risk is the most obvious – see 'credit risk mitigation'. Some of the key risks also referred to in the current survey are described below.

**Correlation Risk:** In the context of the current survey, the risk that the value of collateral will change substantially and directionally in line with that of the exposure it is intended to secure, thereby reducing its effectiveness as a form of credit risk mitigation [qv].

**Custodian Risk:** A custodian is a third party appointed to safe-keep assets on behalf of account-holders, whose rights to those assets will be shown by entries in a register or similar set of records (typically in computerized form). Custodian risk is the risk of failed or inadequate performance by the custodian.

**Issuer Risk:** The credit risk associated with securities posted as collateral.

**Legal Risk:** A sub-category of operational risk [qv], this is the risk that a collateral arrangement will not be enforceable, for instance because of failure to implement a properly documented contract.

**Liquidity Risk:** As distinct from liquidation risk, the risk that the value a party is able to realize on collateral held is diminished because of prevailing bid-offer spreads, particularly in relation to the amount of collateral to be realized.

**Liquidation Risk:** As distinct from liquidity risk, the risk that a party will not be able to realize the value of collateral held in a timely fashion.

**Operational Risk:** Any of a series of risks (including 'legal risk' [qv]) which can reduce the effectiveness of a collateral arrangement. The definition of operational risk that ISDA uses is: 'The risk of direct or indirect loss resulting from inadequate or failed internal process, people and systems or from external events'.<sup>6</sup>

### **Robust System**

See 'database.

### **Threshold**

1. Collateral agreements will often stipulate that collateral must be posted only once credit exposure exceeds a specified level. This level is known as the 'threshold'.
2. In the interests of operational efficiency, agreements may stipulate a de minimis level of collateral required to be posted at any given point. This would be relevant when there has been only a small increase in the underlying credit exposure. This minimum transferable amount is known as the 'threshold amount'.

### **Title Transfer**

A form of collateral arrangement where absolute title to the underlying assets is transferred in exchange for a promise to return equivalent (fungible) assets, subject to a right of set-off; also referred to as 'outright' transfer; cf 'pledge'; see also 'collateral', 'rehypothecation'.

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<sup>6</sup> Taken from 'Operational Risk – The Next Frontier', January 2000, published by ISDA jointly with the British Bankers' Association and Robert Morris Associates. Available from ISDA.

**APPENDIX 4 – ISDA 1999 COLLATERAL REVIEW  
RECOMMENDATIONS**

*ISDA 1999 Collateral Review*

**Index of Recommendations**

<i>Subject Matter</i>	<i>Recommendations by Number</i>
<b>Credit Analysis and collateralization</b>	<p><b>Recommendation 1:</b> 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:</p> <ul style="list-style-type: none"> <li>• traditional measures such as current credit exposure, potential future exposure, and probability of default;</li> <li>• 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</li> <li>• the effects of collateral.</li> </ul>
<b>Managing the Risks of collateralization</b>	<p><b>Recommendation 2:</b> 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.</p> <p><b>Recommendation 3:</b> 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.</p> <p><b>Recommendation 4:</b> Institutions should ensure co-ordination between the collateral, payments and settlement functions.</p> <p><b>Recommendation 5:</b> Institutions should recognize the importance of the collateral function and maintain appropriate levels of suitably qualified staff.</p> <p><b>Recommendation 6:</b> Institutions should emphasise the need to provide the collateral function with quality data to enable appropriate and timely decision making.</p>

<p><i>Subject Matter</i></p>	<p><i>Recommendations by Number</i></p>
<p><b>Dispute Resolution</b></p>	<p><b>Recommendation 7:</b> Institutions should define and implement detailed and, where practicable, automated reconciliation procedures.</p> <p><b>Recommendation 8:</b> ISDA and its members should establish guidelines for informal dispute resolution practice.</p> <p><b>Recommendation 9:</b> Institutions should apply the terms of their collateral agreements consistently in order to ensure greater predictability.</p>
<p><b>Shortening the Collateral Cycle to Reduce Exposures</b></p>	<p><b>Recommendation 10:</b> 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.</p> <p><b>Recommendation 11:</b> 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.</p>
<p><b>Expansion of Collateral Types</b></p>	<p><b>Recommendation 12:</b> 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.</p> <p><b>Recommendation 13:</b> 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.</p>

<i>Subject Matter</i>	<i>Recommendations by Number</i>
<b>Initial Margin</b>	<p><b>Recommendation 14:</b> 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.</p>
<b>Legal and Documentation Issues</b>	<p><b>Recommendation 15:</b> 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.</p> <p><b>Recommendation 16:</b> 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.</p> <p><b>Recommendation 17:</b> ISDA and its members should consider reduction of the variable or elective elements of the standard form ISDA credit support documents.</p> <p><b>Recommendation 18:</b> Institutions should understand the enforceability of their collateral agreement in different jurisdictions.</p> <p><b>Recommendation 19:</b> Institutions, ISDA and industry supervisors should promote harmonisation of the laws and regulations that impact the collateral function.</p>
<b>Cross-Product Netting and collateralization</b>	<p><b>Recommendation 20:</b> ISDA and its members should develop documentation that would permit the cross-product netting and cross product collateralization of a broad range of products.</p> <p><b>Recommendation 21:</b> 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.</p>
<b>Substitutions and Liquidity</b>	<p><b>Recommendation 22:</b> 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.</p>

**APPENDIX 5 - ISDA COLLATERAL SURVEY 2000**

THE COMPLETED SURVEY SHOULD BE RETURNED DIRECT TO BRAXXON BY EXPRESS COURIER OR E-MAIL TO ARRIVE NO LATER THAN 31 DECEMBER 1999:

ISDA COLLATERAL SURVEY 2000  
 BRAXXON TECHNOLOGY LIMITED  
 24 BEDFORD SQUARE  
 LONDON  
 ENGLAND  
 WC1B 3HH

isdasurvey.help@braxxon.co.uk

**Part A - Reference Information**

Company Name:		
Person completing this survey:	Name:	
	Title:	
Contact details (in case of need)	Tel:	
Date completed:		
Name of person who heads the collateral function at your company (specify multiple individuals if overall responsibilities are shared)	Name:	
	Title:	
Do you have an active collateral function?	If yes, when was this established?	
	If no, when do you anticipate starting collateral calls?	
The focus of this survey is on OTC Derivative collateral arrangements. If your responses encompass additional products, please note them here.  <i>(Please check all that apply, and note any exceptions within the categories you select):</i>	Repo	
	Securities Lending	
	Securities Margining	
	Exchange-Traded Derivatives	
	Margin FX	
	Loans	
	Other, please specify:	

**NB: After this page, please do not use either your company name or acronym in completing the responses to any questions.**

**Part B - Assessment of the Current Collateral Management Position within your Organisation**

This part covers the following topics:

- The Business Case for Collateral Management
- Commitment to Collateral Management
- Size and Composition of the Collateral Market
- Collateral Management Practices

**General Instructions:**

- Wherever annual information is requested, please use calendar year-end information - actuals for past years, estimates/projections for 1999 and subsequent years.
- Please feel free to extend your answers beyond the space provided.
- If you do not have sufficient historical or other information available, please respond to questions as best you can and note any assumptions made in the formulation of your response.

**Section 1: The Business Case Driving Collateral Management**

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Question No.				
B1.1	What key business benefits do you see accruing from Collateral Management? (Check appropriate boxes)	<b>Not Important</b>	<b>Somewhat Important</b>	<b>Very Important</b>
	Credit risk management?			
	Other risk management benefits (e.g. results in periodic reconciliations)			
	Cost of capital savings?			
	Increased competitiveness? i.e. access to better pricing and/or ability to quote lower prices			
	Increased liquidity? i.e. more access to counterparties			
	Market Access? i.e. Undertaking more exotic (volatile) trades			
	Other, please specify and rate:			

## ISDA Collateral Survey 2000

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Question No.		
B1.2	What key issues do you face in rolling out Collateral Management in:	<b>(Examples: Client unwillingness, competitiveness, regulatory prohibitions, legal uncertainty)</b>
	United States & Canada?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Central and South America?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Caribbean?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Developed Europe?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Eastern Europe?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Africa?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Japan?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Asia/Pacific (excluding Japan)?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
	Globally?	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
B1.3	What are the key performance measures applied to the Collateral Management function at your firm?  <i>(Examples: Facilitation of increased trading volumes, capital efficiency, cost base, number of new agreements)</i>	

## ISDA Collateral Survey 2000

### Section 2: Commitment to Collateral Management

		1998 Actual	1999 Estimate	2000 Forecast
B2.1	What is the Operational budget allocation for Collateral Management? (in USD)			
B2.2	What is the Systems budget allocation for Collateral Management? (in USD)			
	- Support			
	- Development			
B2.3	Do you have Collateral Management budgets for other activities? If so, please state amounts budgeted for each activity:			
	Legal research			
	Policy and methodology development			
	External marketing and education			
	Other, please specify:			
B2.4	What sort of technology infrastructure supports your collateral activities? (Check one)			
	Spreadsheets			
	Tactical databases (e.g. MS Access)			
	Robust system			
B2.5	Has your collateral technology been:			
	Built within your firm			
	Purchased software package			
	Blend of internal and external software			
B2.6	In what year was your current system implemented?			
B2.7	How are Collateral Management expenses funded?  (Check one)	Central/corporate item		
		Cross-business allocations		
		Other, please describe:		

## ISDA Collateral Survey 2000

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B2.8	<p>Does your firm have a formal collateral policy?</p> <p>If so, what major topics does it cover? (Check all that apply)</p>	
	<p>Eligible collateral assets</p> <p>Haircuts for standard collateral assets</p> <p>Haircut methodology for non-standard assets</p> <p>Reuse of collateral</p> <p>Custodian requirements</p> <p>Valuation frequency preferences</p> <p>Guidelines for product and branch coverage</p> <p>Roles/responsibilities</p> <p>Exception approval process</p> <p>Same-name paper/relatedness/wrong-way collateral</p> <p>Concentrations of collateral</p> <p>Other topics; please provide examples:</p>	
B2.9	<p>What types of collateral do you accept as a matter of policy? (Check all that apply)</p> <p>US Government &amp; Agency Securities</p> <p>European Government Securities</p> <p>Japanese Government Securities</p> <p>AAA Corporate Bonds</p> <p>USD Cash</p> <p>EUR/GBP Cash</p> <p>JPY Cash</p> <p>Major Index Equities (e.g. S&amp;P500, FTSE, Nikkei)</p> <p>Other, please specify:</p>	

## ISDA Collateral Survey 2000

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B2.10	What types of collateral do you give out as a matter of policy? (Check all that apply)	
	US Government & Agency Securities	
	European Government Securities	
	Japanese Government Securities	
	AAA Corporate Bonds	
	USD Cash	
	EUR/GBP Cash	
	JPY Cash	
	Major Index Equities (e.g. S&P500, FTSE, Nikkei)	
	Other, please specify:	
B2.11	What reasons do you have, if any, for not including a wider range of assets in your policy?	

**Section 3: Size and Composition of the Collateral Market**

Question No.				
		1998 Actual	1999 Estimate	2000 Forecast
B3.1	How many OTC Derivative trades does your firm have outstanding?			
B3.2	What percentage by volume of OTC Derivative trades is covered by collateral agreements?			
B3.3	How many executed OTC Derivative collateral agreements does your firm have in total?			
	Please analyse by type of collateral arrangements below			
	ISDA CSA - NY Law Pledge Annex			
	ISDA CSA - English Law Transfer Annex			
	ISDA English Law Credit Support Deed			
	ISDA CSA - Japanese Law Annex			
	AFB Master + Credit Support Annex (French)			
	DRV Master + Credit Support Annex (German)			
Other, please specify:				
B3.4	What percentage of executed OTC Derivative collateral agreements have active trades?			

## ISDA Collateral Survey 2000

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B3.6	What is the geographic split of your collateralized counterparties? (Use percentages by number of agreements)			
	United States & Canada			
	Central and South America			
	Caribbean			
	Developed Europe			
	Eastern Europe			
	Africa			
	Japan			
	Asia/Pacific (excluding Japan)			
B3.7	What is the industry breakdown of your collateralized counterparty population? (Use percentages by number of agreements)			
	Sovereigns, Supranationals, Government Agencies			
	Banks/Broker-Dealers			
	Hedge Funds			
	Other Institutional Investors (Insurance companies, mutual funds, etc.)			
	Corporates			
	Private Individuals			
	Other; please provide examples:			

## ISDA Collateral Survey 2000

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B3.8	How much collateral do you hold (in USD equivalent)?			
	Of that, how much is:			
	US Government & Agency Securities			
	European Government Securities			
	Japanese Government Securities			
	AAA Corporate Bonds			
	USD Cash			
	EUR/GBP Cash			
	JPY Cash			
	Major Index Equities (e.g. S&P500, FTSE, Nikkei)			
Other, please specify:				
B3.9	How much collateral have you given out (in USD equivalent)?			
	Of that, how much is:			
	US Government & Agency Securities			
	European Government Securities			
	Japanese Government Securities			
	AAA Corporate Bonds			
	USD Cash			
	EUR/GBP Cash			
	JPY Cash			
	Major Index Equities (e.g. S&P500, FTSE, Nikkei)			
Other, please specify:				
B3.10	How many tri-party agreements (e.g. with Cedel or Euroclear) are active?			

**Section 4: Collateral Management Practices**

Question No.				
B4.1	What percentage of your pledge form agreements permit reuse of collateral assets?			
B4.2	What percentage of your outgoing collateral requirement is met by reuse of collateral?			
B4.3	What percentage of your reusable collateral received is actually being reused?			
B4.4	Does your firm reuse assets for any purpose other than meeting outgoing collateral requirements? If so, please state other uses.			
	- Liquidity Support			
	- Repo market			
	- Margin for exchanges and clearing houses			
	- Taken to centralised pool			
B4.5	If your firm does not reuse collateral, please explain why.			
		<b>1998 Actual</b>	<b>1999 Estimate</b>	<b>2000 Forecast</b>
B4.6	How many margin calls do you make each month?			
B4.7	How many margin calls do you receive from counterparties each month?			
B4.8	How many substitutions do you initiate each month?			
B4.9	How many substitutions are initiated by your counterparties each month?			
B4.10	How many disputes do you typically have during each month?			
B4.11	To what can your disputes be attributed? (Use percentages)			
	Your firm is missing trades			
	Counterparty is missing trades			
	Valuation timing differences (e.g. time of day, or frequency)			
	FX and other rate differences			
	Valuation methodology differences			
	Other, please specify examples:			

## ISDA Collateral Survey 2000

Question No.							
B4.12	How many failed receipts do you typically encounter each month?						
B4.13	How many times does your firm fail to deliver each month?						
B4.14	How many collateralized counterparty liquidations has your firm handled?						N/A
B4.15	In those liquidations, if any, have any collateral agreements failed to be fully effective?						
	If Yes, please indicate reasons why agreements have failed.  (Check all that apply)	Lack of legal enforceability					
		Delayed realisation due to legal issues					
		Collateral shortfall					
		Agreements not activated					
		Other, please give examples:					
B4.16	How frequently do you re-value transactions in your collateralized portfolio?	(Check one for each product type)					
		<b>Int. Rate</b>	<b>Equity</b>	<b>Emerg. Mkt</b>	<b>Comm - odity</b>	<b>Curr- ency</b>	<b>Credit Derivs</b>
	More than once per day						
	Daily						
	Weekly						
	Fortnightly						
	Monthly						
	Quarterly						
Other, please specify:							
B4.17	How often are you able to call for collateral under current agreements? (Use percentages)						
	More than once per day						
	Daily						
	Weekly						
	Fortnightly						
	Monthly						
	Quarterly						
Less Frequently							
B4.18	Do you typically use ad hoc calls permitted under agreements where they are allowed in between scheduled valuations?						

## ISDA Collateral Survey 2000

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B4.19	How many transaction data sources does your collateral system have?	
B4.20	Of those data sources, what percentage are:	
	Manual entry	
	Spreadsheets or other uploads	
	Automated feeds	
B4.21	What mechanisms do you use to communicate margin calls to your counterparties? (Use percentages)	
	Fax	
	Telephone	
	Mail/Courier	
	Internet (Web interface)	
	E-Mail	
	Other, please specify:	

### Part C - Implementation of *ISDA 1999 Collateral Review Recommendations*

The *ISDA 1999 Collateral Review* made 22 recommendations under the following headings:

- 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;
- Substitutions and Liquidity.

The following sections seek to establish the extent to which these recommendations are implemented within your organisation.

#### Section 1: 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 (pfe) 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.

C1.1	How do you factor collateral into your measure of current exposure, ie mark-to-market?	full offset offset after any haircut not at all
C1.2	How do you factor collateral into your measure of potential future exposure, ie pfe?	a. include collateral in simulation b. reduce pfe factor c. no impact

### Section 2: Managing the Risks of Collateralization

<b>Recommendation 2:</b> 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.		
C2.1	How do you review the composition of your collateral portfolios?	A limits are set and monitored B regular review C no process
C2.2	How do you manage issuer risk of your collateral portfolio?	A limits are set and monitored B regular review C no process
C2.3	How do you manage liquidity risk of your collateral portfolio?	A limits are set and monitored B regular review C no process
C2.4	How do you manage correlation risk of your collateral portfolio with the underlying derivative portfolio?	A limits are set and monitored B regular review C no process
C2.5	How do you manage settlement risk of your collateral portfolio?	A limits are set and monitored B regular review C no process
C2.6	How do you manage custodian risk of your collateral portfolio?	A limits are set and monitored B regular review C no process

**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.

C3.1	From where do you source trade data?	A Data warehouse B Credit system C Direct from Front Office D Direct from Back Office
C3.2	From where do you source collateral data?	A Data warehouse B Credit system C Direct from Custodian D Manually
C3.3	From where do you source documentation data?	A Data warehouse B Credit system C Documentation database D Manually
C3.4	From where do you source market rates data?	A Data warehouse B Credit system C Direct from Vendors D Manually
C3.5	From where do you source counterparty data?	A Data warehouse B Credit system C Trading systems D Manually
C3.6	How do you check data quality?	A STP from source – no checks B Day on day comparison C By monitoring portfolio reconciliation disputes

**Recommendation 4:** Institutions should ensure co-ordination between the collateral, payments and settlement functions.

C4.1	How do you monitor collateral deliveries?	
	Assume deliveries made unless advised to the contrary	
	Positively check for each delivery	
	Other (please describe)	
C4.2	At times of market stress, how well is the management of counterparty risk on payments and other settlement activities integrated with your collateral desk?	A Collateral desk in control B Credit risk manager in control C No explicit co-ordination

<b>Recommendation 5:</b> Institutions should recognize the importance of the collateral function and maintain appropriate levels of suitably qualified staff.			
C5.1	What is the scope of your Collateral Management Function? Does it cover collateral agreements that are:		
	Global?  (If no, please note exceptions)		
	All counterparties?  (Check all that apply)	Institutional Clients	
		Private Clients	
		Other distinctions, please describe:	
	All OTC Derivative products?  (Check all that apply)	Interest Rate	
		Equity	
		Emerging Markets	
		Commodities	
		Currency	
What other types of collateral arrangements does your group support?  (Check all that apply)	Credit		
	Repo		
	Securities Lending		
	Securities Margining		
	Margin FX		
	Exchange-Traded Derivatives		
Loans			
Other, please specify:			

## ISDA Collateral Survey 2000

C5.2	What functional responsibilities does the Collateral Management Function cover?	Number of People (Fractions acceptable)	If not your group, which area of your firm handles?
	General management		
	Setting policies related to collateralization		
	Marketing and education (internal/external)		
	Negotiating collateral agreements		
	Collation of transaction valuations		
	Valuation of collateral assets		
	Making collateral calls		
	Performing reconciliations with counterparties		
	Managing settlements		
	Managing interest payments/ coupon payments/corporate actions on collateral assets		
	Making coupon payments or other payments on underlying transactions		
	Performing reconciliations with custodians		
	Managing/optimising collateral inventory		
	Producing daily P&L		
	Systems development		
	Other functions, please specify:		
C5.3	What is your total headcount?		
	Of those people, how many are trained professionals (vs. clerical/admin staff)?  (Use percentages)	Professional:	
		Clerical:	
	What is the distribution of base salaries?  (Give percentage of staff for each band)	>\$100K	
		\$80-100K	
		\$60-79K	
		\$40-59K	
		<\$40K	

## ISDA Collateral Survey 2000

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C5.4	Into which part of the organisation does your Collateral Management function report?  (Check all that apply)	Credit	
		Risk Management	
		Operations	
		Trading & Sales	
	If multiple parts of the organisation, please describe how functions are distributed.		
C5.5	Do you have Global and Regional Heads of Collateral Management?  If so, where ?		

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

**Section 3: Dispute Resolution**

<p><b>Recommendation 7:</b> Institutions should define and implement detailed and, where practicable, automated reconciliation procedures.</p>																				
C7.1	Do you conduct a full, trade-by-trade reconciliation (e.g. matching of key fields on transaction confirmations and attributing reference numbers so that transactions can be tracked throughout their lifetime) before a collateral agreement is executed?																			
C7.2	Do you perform subsequent reconciliations and if so, how frequently?	When there is a dispute When a call/return is made At least twice a year Quarterly Monthly More frequently																		
C7.3	How do you distribute portfolios for reconciliation?	<table border="0"> <tr> <td></td> <td>1999</td> <td>2000</td> </tr> <tr> <td>Post</td> <td></td> <td></td> </tr> <tr> <td>Fax</td> <td></td> <td></td> </tr> <tr> <td>Disc</td> <td></td> <td></td> </tr> <tr> <td>E-Mail</td> <td></td> <td></td> </tr> <tr> <td>Website</td> <td></td> <td></td> </tr> </table>		1999	2000	Post			Fax			Disc			E-Mail			Website		
	1999	2000																		
Post																				
Fax																				
Disc																				
E-Mail																				
Website																				
C7.4	Are your reconciliation procedures automated?																			

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

<p><b>Recommendation 9:</b> Institutions should apply the terms of their collateral agreements consistently in order to ensure greater predictability.</p>		
C9.1	For what percentage of your collateral agreements do you adhere to the operational procedures of the agreement consistently?	
C9.2	What are the main reasons for not adhering to agreed operational procedures?	

**Section 4: 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 minimise risk further. 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.

C11.1	Do your collateral agreements include a provision for a cash fallback for collateral delivery failure?	
C11.2	In what percentage of cases have these been invoked within a year, and within a month?	
C11.3	What are your reasons for not including this provision in your collateral agreements?	

**Section 5: 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.

C13.1	Do you have an internal volatility-based methodology for determining haircuts?	<i>(If your answer is No – go to question C13.5)</i>
C13.2	Have you reviewed this methodology over the last year or do you intend to do so?	
C13.3	What measures of volatility are used?	
	- Market volatility period (e.g rolling 6 months)	
	- Confidence Factor	%
	- Exposure Period	days
C13.4	Do you employ any stress testing for such haircuts on a periodic basis?	
C13.5	What are your reasons for not having an internal volatility-based “haircut” methodology?	

**Section 6: Initial Margin**

<p><b>Recommendation 14:</b> 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.</p>		
C14.1	What percentage of your collateral agreements contain independent amounts of any type?	
C14.2	From which counterparty types do you typically receive initial margin?	<p>Number of CSAs</p> <p>Sovereigns Banks Corporates Institutional Investors Hedge Funds Private clients</p>
C14.3	For which counterparty types do you agree to post initial margin?	<p>Number of CSAs</p> <p>Sovereigns Banks Corporates Institutional Investors Hedge Funds Private clients</p>
C14.4	How many agreements do you have where initial margin is triggered by a credit event (eg rating downgrade or NAV decline)?	
C14.5	Do you net the Independent Amount with the Variation Margin?	<p>Number of CSAs</p> <p>Net IA Hold separately</p>
C14.6	What factors determine Independent Amounts?	<p>Number of CSAs</p> <p>Counterparty related: Type Quality</p> <p>Trade related: Type Volatility Tenor Currency Size</p>
C14.7	How do you calculate Independent Amounts?	<p>Number of CSAs</p> <p>Fixed Amount Trade Tenor VAR Other</p>

**Section 7: Legal and Documentation Issues**

<p><b>Recommendation 15:</b> 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.</p>		
C15.1	How are your Threshold Amounts set?	<p>Number of Agreements/%</p> <p>Fixed amount Zero amount Rating based NAV based Other</p>
C15.2	How many unilateral agreements do you have?	<p>Number of CSAs/%</p> <p>You receive You post</p>
C15.3	How do you monitor the impact of a rating downgrade on your liquidity?	<p>Simulation Ad hoc report Do not monitor</p>
C15.4	How do you track counterparty ratings changes?	

**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.

C18.1	In which jurisdictions do you consider it important to research when signing a CSA?	<p>CP's home All CP's branches Custodian Sub-custodians Law of contract Other</p>
C18.2	From whom do you obtain legal advice?	<p>ISDA opinion In-House counsel External counsel</p>

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

C19.1	Are there any regulatory constraints imposed on your institution's ability to enter into collateral agreements?  If so, please describe the constraint	
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**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.

C20.1	Have you developed such a master/master structure, and how many of such agreements have you signed?	
C20.2	Do you agree with ISDA's recommendations that documentation should be developed to permit cross product netting and collateralization?	

**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.

### Section 8: 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.

**Part D - Other**

D1.1	If we could grant you one wish relating to collateral management, what would you ask for?	
D1.2	Are there any other comments you wish to make?	