ISDA Margin Survey 2010

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INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION, INC.

INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION

ISDA, which represents participants in the privately negotiated derivatives industry, is among the world's largest global financial trade associations as measured by number of member firms. ISDA was chartered in 1985, and today has over 820 member institutions from 57 countries on six continents. These members include most of the world's major institutions that deal in privately negotiated derivatives, as well as many of the businesses, governmental entities and other end users that rely on over-the-counter derivatives to manage efficiently the financial market risks inherent in their core economic activities.

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

Summary

1. Collateral in circulation is a key measure of the total amount of collateral used to mitigate the credit risk of OTC derivatives. This measure of collateral fell 20 percent during 2009, from US$4.0 trillion at end-2008 to US$ 3.2 trillion, as a result of the reduction in counterparty exposures that accompanied a marked decline in market volatility and a return to more normal interest rate levels and credit spreads. The reported decline in collateral in circulation is consistent with an 23 percent decline in gross credit exposure during the first half of 2009, as reported by the Bank for International Settlements (see Chart 2.2).

2. The Number of Collateral Agreements in use in the OTC derivative market grew to 171,879 by end-2009, of which 92 percent are ISDA agreements. Among firms that responded in both 2009 and 2010, the total number of collateral agreements grew 14 percent over the past year. About 83 percent of all collateral agreements are bilateral, up from 75 percent last year. This latter result reflects a continuing trend toward the use of bilateral agreements.

3. As with other types of financial transactions, such as loans for example, the decision whether to secure credit risk associated with a derivatives transaction by collateralization is a credit risk management decision. Collateral agreements may be applied to all types of derivatives, and in practice the market trading conventions and credit risk considerations in different segments of the OTC derivatives market lead to a range of degrees of collateralization.

    a. Among all firms responding to the survey, 93 percent of all credit derivatives trades executed were subject to collateral arrangements during 2009, the highest rate observed among all different types of derivatives transactions. Overall, 70 percent of all OTC derivatives transactions were subject to collateral agreements during this period.

    b. The fifteen largest reporting firms, representing the world's largest derivatives dealers, reported higher rates of collateralization. For this group, an average 97 percent of credit derivatives trades were subject to collateral arrangements during 2009. Overall, 78 percent of all OTC derivatives transaction executed by the large derivatives dealers were subject to collateral agreements.

    c. Analyzing the data based on the type of counterparty, collateralization of risk ranged from a high of collateral covering 141 percent of outstanding exposures to hedge funds to a low of collateral covering 25 percent of exposures to sovereigns and supranational agencies at the end of 2009.

4. Portfolio reconciliation, which refers to the matching of both the population and mark-to-market of outstanding trades in a collateralized portfolio, is considered good market practice. About 90 percent of all survey respondents and 100 percent of the 15 largest OTC dealer banks indicated that they periodically performed portfolio reconciliations.

5. Cash used as collateral represents around 82 percent of collateral received and 83 percent of collateral delivered in 2009, which is broadly consistent with last year's results. Government securities constitute just under 10 percent of collateral received and 14 percent of collateral delivered this year, again consistent with end-2008.

1. Introduction

ISDA's Margin Survey, first published in 2000, provides information about the use of collateral in the OTC derivatives business. The Margin Survey is part of a broader set of ISDA initiatives in the area of collateral, including documentation, best practices and practitioner guidelines. The data used in the Margin Survey is sampled as of December 31 each year.

1.1. COLLATERAL AS A RISK MANAGEMENT TOOL

Credit risk exists whenever a firm has a relationship where a counterparty has an obligation to make payments or deliveries in the future. As discussed in ISDA's "Market Review of OTC Derivative Bilateral Collateralization Practices," there are a number of ways of addressing the credit risk arising from a derivatives transaction, including: holding capital against the exposure; reducing credit risk through close-out netting; having another person or entity reimburse losses through financial guarantees; or by collateralizing the exposure[1]. Each of these methods has its advantages and disadvantages.

The decision to use collateral to mitigate risk is one evaluated carefully by credit risk managers in each firm that is a counterparty to a derivative transaction. This discretionary, prudential management of credit risk, which may include the use of collateral, is a common feature across a wide range of products in the capital and retail financial markets, including loans, derivatives, clearance and other types of transaction.

Collateralization works best in those cases where the volume of activity is sufficient to warrant bearing the operational and procedural burdens associated with the complex collateral process. Not all derivatives users trade these instruments frequently enough to justify the operational burden and expense of collateralization. This latter group includes non-financial corporations whose business models cannot easily sustain the cash flows required for collateralization. Additionally, firms may face external restrictions such as legal and tax reasons that effectively prohibit the use of collateralization. Finally, there are cases where it is simply more cost efficient to rely on other methods of credit risk mitigation.

Nonetheless, collateralization remains among the most widely used methods to mitigate counterparty credit risk in the OTC derivatives market, and market participants have increased their reliance on collateralization over the years.

1.2. ABOUT THE SURVEY RESPONDENTS

A total of eighty-nine ISDA member firms responded to the 2010 Margin Survey; Appendix 1 lists the respondents. We classified respondents into three size groups based on the number of collateral agreements executed. The threshold for classification as a "large" program is more than 3,000 agreements. This sample includes fourteen of the largest OTC derivatives dealers plus one bank in the process of merging with a major dealer that would not have been classified as a "large" firm otherwise, leading to a total of fifteen institutions falling under the classification of large firms. Respondents were classified as having medium-sized programs if they had more than 100 but less than 3,000 collateral agreements outstanding. Firms that reported having

1 ISDA's "Market Review of OTC Derivative Bilateral Collateralization Practices" was published on March 1, 2010, and can be found on ISDA's website at www.isda.org

between zero and 100 agreements were classified as having small programs. For the 2010 Survey, forty-one of the respondents were classified as medium, while thirty-three were classified as small firms. Note that the definitions used to classify small, medium and large programs were changed this year from those used in previous surveys[1].

Table 1.1 Profile of firms responding to 2010 ISDA Margin Survey
Numbers of firms

Size Class	Number of agreements	Number of respondents
Large	> 3,000	15
Medium	100 - 3,000	41
Small	0 - 100	33
Total		89

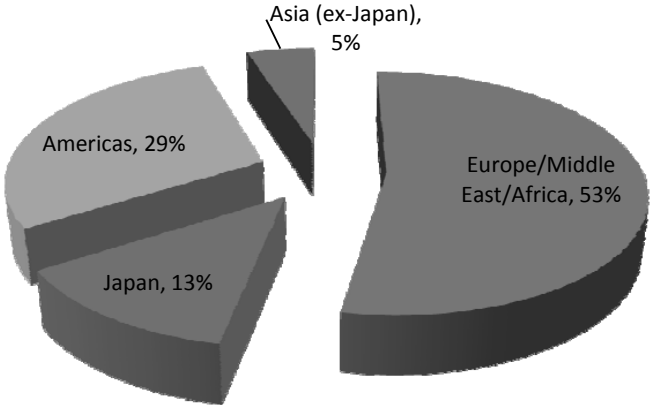
Table 1.2 classifies respondents according to firm or entity type. Seventy of the eighty-nine respondents were banks and broker-dealers. The remaining respondents consisted of hedge funds, insurers, government agencies and government-sponsored entities.

Table 1.2 Type of entity responding to 2010 ISDA Margin Survey

Bank/Broker-dealer	70
Corporate	2
Energy/Commodity firm	2
Government agency	3
Hedge fund	3
Insurer	3
Government-sponsored entity	1
Other	5
Total	**89**

Chart 1.1 shows the geographic distribution of survey respondents. Over half were from institutions based in Europe, the Middle East or Africa and 29 percent were based in the Americas.

Chart 1.1 Geographic Distribution of Survey Respondents



1 In past years the firms having more than 1,000 collateral agreements were classified as having a large program, while firms with less than 1,000 but more than fifty agreements were classified as having medium-sized programs and firms with fifty or fewer agreements were classified as small.

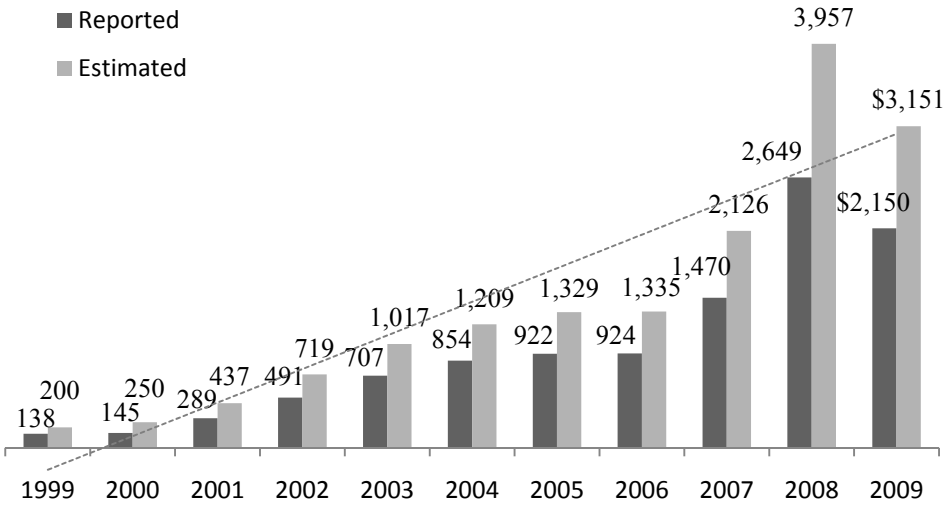
The 2010 Survey refers to the collateral management functions of respondents as of December 31, 2009. All amounts reported are in US dollars. As with all ISDA surveys, access to individual firm responses is strictly limited to selected ISDA staff and the data are not shared with the employee of any ISDA member firm or any other outside party.

2. Collateral assets

2.1. ESTIMATES OF TOTAL COLLATERAL OUTSTANDING

The estimated amount of Collateral in Circulation in the OTC derivatives market at the end of 2009 was approximately $3.2 trillion, which is down from last year's estimated amount of $4.0 trillion. The $3.2 trillion estimate of total collateral in use is based on a total reported collateral amount of $2.1 trillion. The estimation procedure is described in Appendix 2. Measured over a two-year horizon (2007-2009), estimated collateral has grown at a compounded annual rate of 22 percent per year, while the three-year (2006-2009) compounded annual growth rate is 33 percent. Approximately 56 percent of total collateral—59 percent of collateral received and 52 percent of collateral delivered—was reported by the fifteen large dealers in the sample.

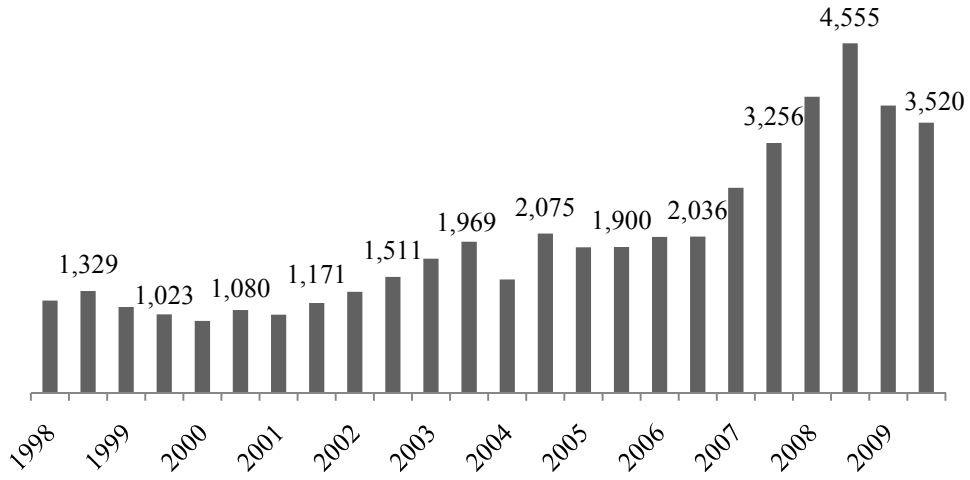
Chart 2.1 Growth of value of total reported and estimated collateral, 2000 - 2010
Billions of US dollars



The decline in reported collateral can be attributed to a sharp decline in derivatives exposures resulting from a marked decline in market volatility in 2009 along with a return to more normal interest rate levels and credit spreads. Chart 2.2 below displays data on aggregate counterparty credit exposure collected by the Bank for International Settlements (BIS). The data reflect the net mark-to-market value of counterparty exposures taking into account the benefits of close-out netting but before taking into account the effect of collateral in reducing risk exposure. As the chart shows, aggregate counterparty exposure peaked at US $4,555 billion in December of 2008 and fell to US $3,520 billion by December of 2009, a 23 percent decline. In comparison, the total estimated amount of collateral in circulation fell 20 percent during the same period.

When compared, the data underlying these two charts reveal a trend toward a steady increase in collateral in circulation. Over the ten-year period from 1999 to 2009 the amount of collateral in circulation has grown at a 35 percent compounded annual growth rate while gross credit exposure, as measured by the BIS, has grown at a 13 percent compounded annual rate.

Chart 2.2 Gross Credit Exposure of OTC Derivatives (USD billions)



Source: Bank for International Settlements

Year-over-year changes in the reported quantity of collateral received and delivered varied across firms, sometimes significantly. The structure of the market changed significantly during the past year due to mergers involving several major dealers: many observed deviations from the norm involved banks and dealers involved in such mergers.

2.2 TYPES OF ASSETS USED AS COLLATERAL

Table 2.1 shows the breakdown of reported collateral by asset category. The results this year are broadly similar to last year's in terms of types of collateral. For many years cash and government securities exhibited a trend of increased use measured as a percent of total collateral. This year that trend shows signs of having peaked, with the share of cash and government securities as a percent of all collateral received and delivered being approximately the same as last year. Any changes from percentages reported last year are relatively small and can be attributed to sampling error. The use of cash and government securities as collateral remains predominant despite an increased range of collateral assets deemed acceptable by market participants.

Table 2.1 Value of collateral received and delivered by respondents
By type, millions of US dollars

		Collateral Received	Percent	Collateral Delivered	Percent
Cash	USD	484,130	41.0	408,374	42.1
	EUR	411,416	34.9	305,068	31.5
	GBP	27,278	2.3	34,332	3.5
	JPY	27,396	2.3	20,817	2.1
	Other	16,455	1.4	26,489	2.7
Subtotal		**966,675**	**81.9**	**795,080**	**82.0**
Government Securities	United States	31,224	2.6	43,438	4.5
	European Union	33,815	2.9	55,586	5.7
	United Kingdom	10,693	0.9	17,831	1.8
	Japan	24,540	2.1	14,396	1.5
	Other	16,205	1.4	6,196	0.6
Subtotal		**116,478**	**9.9**	**137,449**	**14.2**
Others	Govt. agency securities	18,881	1.6	9,661	1.0
	Supranational bonds	2,425	0.2	237	0.0
	Covered bonds	913	0.1	1,908	0.2
	Corporate bonds	27,696	2.3	9,152	0.9
	Letters of credit	9,975	0.8	1,238	0.1
	Equities	25,123	2.1	8,538	0.9
	Metals and commodities	92	0.0	0	0.0
	Other	11,883	1.0	6,473	0.7
Subtotal		**96,988**	**8.2**	**37,207**	**3.8**
Total collateral		**1,180,140**		**969,735**	
Grand total				**2,149,875**	

Table 2.2 shows the composition of collateral received and delivered by program size. The results are fairly uniform across program size, with variations attributable to sampling error. Again, this year's results are broadly similar to those reported last year. Observed changes in collateral composition tend to vary more from year to year for the group of firms with small programs than for those with medium and large programs because of the relatively small size of the sample. No trend is evident in these observed changes.

Table 2.2 Types of collateral received and delivered, by program size
Percent

	Collateral Received			Collateral Delivered		
	Large	**Medium**	**Small**	**Large**	**Medium**	**Small**
USD	43	28	35	47	24	41
EUR	34	40	34	26	50	33
GBP	2	2	1	4	2	0
JPY	1	8	7	1	6	3
Other	1	4	0	3	1	1
Subtotal	**82**	**83**	**78**	**82**	**83**	**78**
United States	3	2	2	4	6	1
European Union	3	2	0	7	2	5
UK	1	0	0	2	0	0
Japan	2	4	12	1	3	6
Other	1	2	1	0	2	2
Subtotal	**10**	**11**	**15**	**14**	**13**	**13**
Government Agencies	2	1	7	1	1	4
Supranationals	0	0	0	0	0	0
Covered Bonds	0	0	0	0	0	0
Corporate Bonds	3	1	0	1	1	3
Letters of Credit	1	0	0	0	0	2
Equities	2	2	0	1	0	0
Metals and other commodities	0	0	0	0	0	0
Others	1	2	0	1	1	0
Subtotal	**7**	**5**	**0**	**3**	**2**	**4**

2.3 DISPOSITION OF COLLATERAL DELIVERED

The 2010 Survey contains several new questions regarding the disposition of collateral received and delivered. The first of these new questions asked whether respondents had made arrangements to segregate collateral posted as Independent Amounts and what types of arrangements were made to secure that collateral. The second asked whether respondents rehypothecate collateral and what percentage of collateral received in connection with OTC derivatives transactions is rehypothecated.

Table 2.3 below summarizes responses to the question of where Independent Amounts are held. Independent Amounts are analogous to initial margins required by futures clearinghouses to collateralize potential counterparty exposures. Like initial margin, Independent Amounts are designed to ensure that derivatives positions remain collateralized between margin calls.

Survey respondents reported that well over half of the Independent Amount they delivered was placed with a central counterparty. This percentage is even higher for the largest dealers, who report delivering almost three-fourths of Independent Amount to central counterparties. Just under a third of Independent Amount is commingled with variation margin, and much smaller percentages are segregated on the books and records of dealers or held in segregated custodial accounts.

Table 2.3 Disposition of Independent Amount
Percent of total

	Independent Amount Received		Independent Amount Delivered	
	All	Large Dealers	All	Large Dealers
Commingled with variation margin	82	82	32	28
Segregated on books and records of dealer	2	2	4	0
Segregated with custodian	9	9	2	0
Tri-party	7	7	2	0
Central Counterparty	-	-	59	72

Most Independent Amount received is commingled with variation margin. Nine percent is segregated with a custodian or with a third party. It appears uncommon for independent amount received to be segregated on the books and records of dealers. The similarity of reported results for the large dealers and the full sample can be explained by the fact that most respondents outside of the large dealers do not report receiving Independent Amounts: dealers are much more likely to require Independent Amounts to be posted than non-dealers. No figures are reported for Independent Amount received from Central Counterparties since Central Counterparties do not deliver Independent Amounts to their counterparties but hold it in separate accounts. The role of Central Counterparties in clearing trades and in managing collateral is of growing importance, and one which future surveys will address more comprehensively.

The practice of rehypothecation involves the re-use of securities delivered. A dealer receiving securities as collateral may re-use the same security, to collateralize its own exposure with its counterparties for example. In the case of cash collateral, rehypothecation involves either using the cash received as collateral to buy investment securities, to lend on to others, or to collateralize other derivatives exposures. Forty-four percent of all respondents and 93 percent of large dealers report rehypothecating collateral. Survey respondents as a whole report rehypothecating 33 percent of collateral received while the large dealers report rehypothecating 82 percent of collateral received. This result is not surprising since over 80 percent of collateral is in the form of cash deposits.

Table 2.4 Percent of collateral rehypothecated

	All	Large
Do you rehypothecate collateral?	44	93
connection with OTC derivatives transactions is rehypothecated?	33	82

Rehypothecation practices are discussed more comprehensively in ISDA's " Market Review of OTC Derivative Bilateral Collateralization Practices," cited earlier.

3. Extent of collateral use

3.1 Number and types of collateral agreements

Respondents to the 2010 Margin Survey report 171,869 collateral agreements in place, compared with 150,881 in the 2008 Survey (see Chart 3.1 below), a 14 percent increase. The result is unchanged if the sample of firms is restricted to those that also responded to last year's survey: the growth rate of collateral agreements for that subsample is 14 percent.

Chart 3.1 Growth of collateral agreements reported by respondents, 2000-2010 Surveys

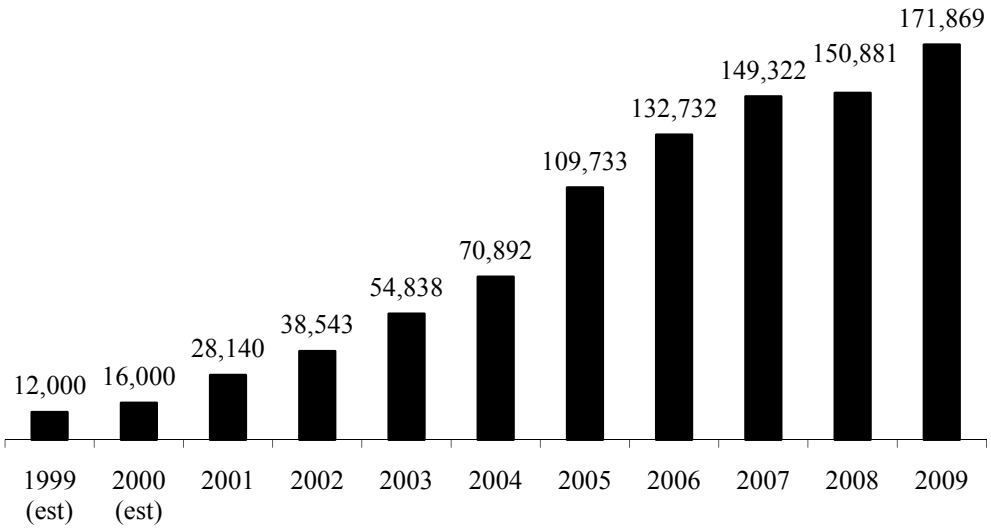


Table 3.1 shows the split between unilateral and bilateral agreements and between ISDA and non-ISDA agreements. As in previous years, ISDA credit support documentation is the most frequent choice among practitioners at about 92 percent. Non-ISDA documents include bespoke margin agreements, long-form confirmations with collateral terms, master margining agreements, commodity-specific margining agreements, and jurisdiction-specific agreements such as French AFB and German Rahmenvertrag. Respondents report that approximately 85 percent of their ISDA credit support agreements and 83 percent of all agreements are bilateral. These results reflect a continuing trend toward the use of bilateral agreements since the inception of the survey: last year respondents reported that 80 percent of all their ISDA credit support agreements and 75 percent of all agreements were bilateral.

Table 3.1 Numbers and types of collateral agreement used by respondents

Unilateral				Bilateral				Total Active
ISDA collateral agreements	Non-ISDA agreements	Total Number Unilateral	Total forecast for 2010 - Unilateral	ISDA collateral agreements	Non-ISDA agreements	Total number Bilateral	Total forecast for 2010 - Bilateral	
23,673	5,921	28,985	28,360	134,485	10,966	142,884	160,479	171,869
14%	*3%*	*17%*		*78%*	*6%*	*83%*		*100%*

Respondents that provided a forecast this year expect the number of active credit support agreements to grow by 10 percent in 2010.

3.2 COLLATERALIZATION LEVELS

To measure collateral coverage, the Survey asks respondents to report (1) percent of trade volume subject to credit support agreements, and (2) OTC derivative credit exposure covered by collateral. Percent of trade volume is the number of OTC derivative trades subject to any collateral agreement divided by the total number of derivative trades. Percent of exposure collateralized is the sum of the ratio of collateral received from counterparties divided by the total counterparty credit exposure before collateralization.

Table 3.2 shows the percent of trade volume subject to credit support agreements by type of instrument. The results vary from a high of 93 percent of trade volume for credit derivatives to a low of 57 percent for foreign exchange transactions. The relatively low rate of collateralization of foreign exchange transactions is explained in part by the short maturities for most such transactions, which present relatively low risk and are often therefore not collateralized; another factor is the heavy use of foreign exchange derivatives by non-financial companies, for which collateralization is not always required ISDA's 2009 Derivatives Usage Survey found that the use of foreign exchange derivatives and interest rate derivatives was almost universal among large multinational companies[1]. Similarly, most users of commodity derivatives also tended to be non-financial companies, which are less likely to post collateral than financial firms. In interpreting these data it important to note that not all OTC derivatives are alike, and sub-segments of the market are traded under different market conventions and have differing risk profiles, which in turn lead to differing degrees of collateralization for different types of transactions.

Table 3.2 Percent of trades subject to collateral agreements, by size of program

	Percent of trades						
	All OTC derivatives	Fixed Income derivatives	Credit derivatives	FX derivatives	Equity derivatives	Precious & base metals derivatives	Energy and other commodity derivatives
All Respondents	70	79	93	57	71	60	64
Large dealers	78	84	97	63	68	69	62
Medium and Small	68	77	91	54	72	52	65

1 ISDA 2009 Derivatives Usage Survey, http://www.isda.org/researchnotes/pdf/ISDA-Research-Notes2.pdf

Collateralization rates are almost uniformly higher among the largest 15 OTC derivatives dealers than for the rest of the sample. Large dealers report that 78 percent of their overall trade volume is subject to collateral agreements, compared to 68 percent of Medium and Small firms, with percentages ranging between 97 percent of their credit derivatives trades on the high end and 62 percent of energy and other commodity derivatives on the low end. Readers should note that no comparison is given between the data in Table 3.2 and historical values. This is due to refinements in methodology that mean that year-on-year data are not strictly comparable between 2009 and 2010.

Table 3.3 shows collateralization levels across different types of counterparties. Hedge fund exposures tend to be the most highly collateralized of all types of counterparty exposures with average collateralization levels exceeding 100 percent of net exposures, a figure that reflects Independent Amounts posted by such firms. Positions with banks and broker dealers are the next most highly collateralized among the different counterparty types. Exposures to non-financial corporations and sovereign governments and supra-national institutions tend to have the lowest collateralization levels. The results also show that the major derivatives dealers tend to collateralize their net exposures more highly than other firms.

Table 3.3 Collateralization levels by counterparty type

	All OTC derivatives	Bank/Broker-dealer	Hedge Fund	Institutional investor	Sovereign/ supranational	Corporate	Other
All respondents	69	78	141	58	25	47	91
Large Firms (Fed 14)	73	87	146	73	31	32	41
Medium and Small	68	76	134	43	20	57	131

3.3 COUNTERPARTIES OF COLLATERALIZED TRANSACTIONS

This year the Survey asked respondents to provide information about a wider variety of counterparty types than in past years. Our sample of the 15 large firms shows that most of their collateral agreements are with institutional investors (41 percent), followed by hedge funds (24 percent) and other banks and broker dealers (11 percent). For medium-sized firms, a sample that includes many banks not included in the ranks of the largest OTC derivative dealers, nearly half their collateral agreements are with other banks and broker dealers (46 percent), followed by corporates (17 percent) and hedge funds and institutional investors (13 percent each). An overwhelming majority of collateral agreements outstanding at small firms are with banks and broker dealers (89 percent).

Table 3.4 Counterparties of collateralized transations (percent of total)

	Bank Broker Dealer	Sovereign/ Supranational	Hedge Fund	Institutional Investor	Corporate	Energy/ Commodity trading firm	SPVs/ SPEs	CCPs	Other Counter party
Total Sample	16	1	23	37	12	1	2	0.03	8
14 largest dealers	11	1	24	41	11	1	2	0.03	8
Medium-sized firms	46	2	13	13	17	1	1	0.05	7
Small firms	89	1	0	1	6	1	1	0.00	0

This is the first year the survey asked respondents to report information regarding collateral agreements with central counterparties. Central Counterparties constitute a negligible fraction of the number of counterparties firms with whom derivatives users hold positions since the number of central counterparties is very small, even though the size of exposures to Central Counterparties may be a large and very important share of total exposure.

4. Collateral Management

As in past years, the 2010 Survey asked respondents whether they reconcile their portfolios and how often reconciliation is performed. This year 90 percent indicated that they performed some form of portfolio reconciliation. This number is up significantly from the 80 percent of respondents indicating that they performed routine portfolio reconciliation last year.

Respondents were also asked how frequently they performed portfolio reconciliations. Specifically, respondents were asked what percentage of trades were reconciled at daily, weekly or monthly intervals, or other. Table 4.1. below displays a summary of their responses to this question.

Table 4.1 Frequency of portfolio reconciliation:percentange of trades reconciled at stated intervals

Percent of trades	Daily	Weekly	Monthly	Ad hoc/ Dispute driven
Total Sample	29	10	15	47
Fed 14	56	5	3	37

Large dealers tend to reconcile a higher percentage of trades on a daily basis than other respondents. It is standard market practice for large dealers to reconcile outstanding trades with each other on a daily basis, and a large percentage of trades executed by dealers is with other dealers. The "Other" category reflects the responses of firms that reconciled trades with certain counterparties on a quarterly, semi-annual or annual basis, or on an ad hoc basis or in response to disputes.

Another question asked respondents whether they rely on a third-party service provider to provide any assistance in managing the collateral function. Seven percent of all respondents and 20 percent of the 15 large dealers answered yes. Note that this question does not necessarily refer to the outsourcing of the entire collateral management function, but to supporting services for specific functions.

The 2010 Survey included a new question asking whether respondents set collateral thresholds based on credit ratings and credit default swap spreads. The responses are summarized in Table 4.2 below.

Table 4.2 Frequency with which certain criterion may be used to set collateral thresholds

Percent that use	**All**	**14 Large**
Credit Rating	86	100
CDS Spread	12	27

Eighty-six percent of the entire sample and 100 percent of the large dealer sample state that they sometimes set collateral thresholds based on credit ratings. Twelve percent of survey respondents and only 27 percent of dealers indicate that they set collateral thresholds based on credit default swap spreads.

Appendix 1. Firms responding to the 2010 ISDA Margin Survey

Largest 15 dealer banks

Bank of America Merrill Lynch
Barclays
BNP Paribas
Citigroup
Credit Suisse
Deutsche Bank
Goldman Sachs
HSBC
JP Morgan Chase
Morgan Stanley
Societe Generale
The Royal Bank of Scotland
UBS
Wachovia
Wells Fargo

All other respondents

Abbey National Treasury Services
ABN Amro Bank
AEGON USA Investment Management
Allied Irish Banks
Aozora Bank
APG Asset Management
ATB Financial
Banca Monte Dei Paschi di Siena
Banco Bilbao Vizcaya Argentaria
Banco BPI
Bank of Montreal
Bank of New York Mellon
Bank of Scotland
Bank of Tokyo-Mitsubishi UFJ
Brown Brothers Harriman & Co.
Calyon
Canada Mortgage and Housing Corporation
Cheyne Capital Management
Chuo Mitsui Trust and Banking Company, Limited
CIBC World Markets
Citadel Investment Group LLC
Confederación Española de Cajas de Ahorros (CECA)
Daiwa Securities Capital Markets Co. Ltd.
DBS Bank Ltd
Dexia
DnB NOR Bank
DZ BANK
Eksportfinans
Elektrizitäts-Gesellschaft Laufenburg (EGL)
Eni S.p.A.
Freddie Mac
Goldman Sachs Asset Management
Government Debt Management Agency Pte Ltd.
Itau Unibanco Banco Multiplo S.A.
KBC Bank
KfW Bankengruppe
Landesbank Baden-Württemberg
Landesbank Berlin
Lloyds TSB
Louis Dreyfus Energy Services
MetLife
Mitsubishi UFJ Securities.
Mitsubishi UFJ Trust and Banking Corporation
Mizuho Capital Markets Corporation
Mizuho Corporate Bank
Mizuho Securities
National Australia Bank
National Bank of Canada
Nikko Cordial Securities
Nomura (Nomura Intl Plc & Nomura Global) Financial Products
Nomura Securities
Nordea AB
Nordeutsche Landesbank Girozentrale
Oversea-Chinese Banking Corporation Limited
Pacific Life Insurance Company
Prudential Global Funding
Rabobank International
Raiffeisenlandesbank Niederoesterreich-Wien
Royal Bank of Canada
RZB - Raiffeisen Zentralbank Österreich
SEB
Shinsei Bank
Standard Chartered bank
Svenska Handelsbanken
Sumitomo Trust & Banking Co., Ltd.
TD Bank
UniCredit Bank AG (Hypo Vereinsbank AG)
UniCredit CAIB AG
UniCredit S.p.A.
Schroders
Wellington Management
Westpac Banking Corporation
WGZ BANK
Zürcher Kantonalbank

Appendix 2: Adjustment to reported collateral to obtain estimated collateral

Double counting of collateral. The objective of the ISDA Margin Survey is to estimate the importance of collateralization in the market and not simply to estimate the value of assets used as collateral. The Survey therefore tracks the gross amount of collateral—defined as the sum of all collateral delivered out and all collateral received by Survey respondents—and does not adjust for double counting of collateral assets. Double counting takes at least two forms. The first occurs when one Survey respondent delivers collateral to or receives collateral from another respondent. The collateral assets in this case are counted twice, once as received and once as delivered. The second source of double-counting is collateral re-use—sometimes called rehypothecation—in which collateral is delivered from one party to another, then delivered to a third party, and so on. A single unit of re-used collateral may consequently be counted several times by the Survey as the collateral progresses down the chain of parties re-using it. But because each re-use represents the securing of a separate and distinct credit exposure between two parties, we believe it is valid to count the collateral as many times as it is used. If in contrast the objective were simply to measure the value of assets currently in use as collateral, it would then be necessary to adjust for double counting.

Adjusting for non-responding firms. In order to arrive at an industry gross amount, we adjust the reported sample results for nonparticipation in the Survey. The nonparticipation problem arises because the Margin Survey is compiled from the responses of ISDA member firms, among which large end-users of derivatives such as hedge funds are not as comprehensively represented as the dealers, all of which are investment and commercial banks. There are two possible distortions resulting from non-response to the Survey. The first occurs when two firms, neither of which has responded to the Survey, engage in an exchange of collateral with each other. The second occurs when a non-responding firm and a responding firm engage in an exchange of collateral, so the collateral posting is counted only once. We only adjust for the second as we believe the amount of collateralization that does not involve a responding firm in the ISDA sample is of minor significance. The adjustment is based on the following calculation. First, we poll several major dealer respondents for the percentage of collateral received from and delivered to entities that responded to the Survey. We use the results to calculate an average percentage of collateral received from non-respondents and an average percentage delivered to non-respondents. We then adjust the total amount of collateral held by major dealers with non-respondents by adding in the collateral with non-respondents. The resulting number is significantly larger than that based only on reported amounts. The adjustment is conservative, however, in that it only adjusts the collateral held by the largest dealers. We therefore believe that, although the final number of $3.151 trillion is a more accurate reflection of the amount of collateral use than the estimate based solely on the Survey responses, it still understates the actual amount of collateral in circulation.