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ISDA Margin Survey 2012

May 2012

ISDA's annual Margin Survey provides information about the use of collateral in the OTC derivatives business. The data used in the 2012 Margin Survey is sampled as of December 30, 2011. Over the past 12 years, the Margin Survey has provided a consistent set of benchmarks for collateral use, and is part of a broader set of ISDA initiatives in the area of collateral, including documentation, best practices and practitioner guidelines.

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INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION

Since its founding in 1985, the International Swaps and Derivatives Association has worked to make over-the-counter (OTC) derivatives markets safe and efficient.

ISDA's pioneering work in developing the ISDA Master Agreement and a wide range of related documentation materials, and in ensuring the enforceability of their netting and collateral provisions, has helped to significantly reduce credit and legal risk. The Association has been a leader in promoting sound risk management practices and processes, and engages constructively with policymakers and legislators around the world to advance the understanding and treatment of derivatives as a risk management tool.

Today, the Association has more than 815 members from 58 countries on six continents. These members include a broad range of OTC derivatives market participants: global, international and regional banks, asset managers, energy and commodities firms, government and supranational entities, insurers and diversified financial institutions, corporations, law firms, exchanges, Clearinghouses and other service providers.

ISDA's work in three key areas – reducing counterparty credit risk, increasing transparency, and improving the industry's operational infrastructure – show the strong commitment of the Association toward its primary goals; to build robust, stable financial markets and a strong financial regulatory framework.

Information about ISDA and its activities is available on the Association's web site: www.isda.org.

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 in circulation in the uncleared OTC Derivatives Market rose 24 percent during 2011, from US\$ 2.9 trillion at end-2010 to US \$ 3.6 trillion, primarily as a result of downgrades of financial firms, the Eurozone debt crisis and decline in interest rates.
2. The Number of Collateral Agreements in use in the OTC derivative market was 137,869 by end-2011, of which 85 percent are ISDA agreements. Among firms that responded in both 2010 and 2011, the total number of collateral agreements slightly decreased over the past year. About 84 percent of all collateral agreements are bilateral, same percentage observed last year.
3. 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 2011, the highest rate observed among all different types of derivatives transactions. Overall, 71 percent of all OTC derivatives transactions were subject to collateral agreements during this period. The total average of all OTC derivatives collateralized includes transactions with end-users and spot FX transactions, which due to the nature of these trade types, are not generally collateralized.
 - b. The largest reporting firms, representing the world's largest derivatives dealers, reported higher rates of collateralization. For this group, an average 96 percent of credit derivatives trades were subject to collateral arrangements during 2011. Overall, 84 percent of all OTC derivatives transaction executed by the large derivatives dealers were subject to collateral agreements.
4. Portfolio reconciliation, which refers to the matching of both the population and mark-to-market of outstanding trades in a collateralized portfolio, continues to be considered good market practice. About 75 percent of all survey respondents and 100 percent of the largest OTC dealer banks indicated that they regularly performed portfolio reconciliations.
5. Cash used as collateral represents around 79 percent of collateral received and 76 percent of collateral delivered in 2011, which is broadly consistent with last year's results. Government securities constitute 12 percent of collateral received and 21 percent of collateral delivered this year, again consistent with end-2011.

1. INTRODUCTION

ISDA's annual Margin Survey, first published in 2000, provides information about the use of collateral in the OTC derivatives business. The data used in the 2012 Margin Survey is sampled as of December 30, 2011. Over the past 12 years, the Margin Survey has provided a consistent set of benchmarks for collateral use. Each year the Margin Survey evolves slightly to reflect market developments, and thus in the 2012 Survey more attention is paid to collateralization of cleared derivatives, in addition to coverage of the bilateral, uncleared market. The Margin Survey is part of a broader set of ISDA initiatives in the area of collateral, including documentation, best practices and practitioner guidelines. 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 is not shared with the employee of any ISDA member firm.

Please note that there are various proposed and final regulations implementing the Dodd-Frank Act and EMIR in regard to collateral management. The results of this survey reflect data gathered prior to the implementation of these new regulatory requirements.

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, scale or risk is sufficient to warrant bearing the operational and procedural burdens associated with the sophisticated collateral process. Therefore, there are cases where it is simply more cost efficient to rely on other methods of credit risk mitigation. Nonetheless, it 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. In an evolving regulatory environment that broadly seeks to reduce the counterparty risk associated with derivatives, the continued use of bilateral collateralization has an important role to play in risk mitigation.

1.1. ABOUT THE SURVEY RESPONDENTS

A total of 51 ISDA member firms responded to the 2012 Margin Survey; Appendix 1 lists the respondents. Respondents are classified into three size groups based on the number of active collateral agreements. The threshold for classification as a "large" program is more than 3,000 active agreements.

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.

This sample includes fourteen of the largest OTC derivatives dealers. Respondents were classified as having medium-sized programs if they had more than 100 but less than 3,000 active collateral agreements outstanding. Firms that reported having between zero and 100 active agreements were classified as having small programs. For the 2012 Survey, 23 of the respondents were classified as medium, while 14 were classified as small firms.

Table 1.1. Profile of firms responding to the 2012 ISDA Margin Survey

Size Class	Number of agreements	Number of respondents 2012	Number of respondents 2011
Large	> 3,000	14	14
Medium	100 - 3,000	23	29
Small	0 - 100	14	40
Total		51	83

Table 1.2 classifies respondents according to firm or entity type. 43 of the 51 respondents were banks and broker-dealers. The remaining participants consisted of hedge funds, insurers, government agencies and government-sponsored entities.

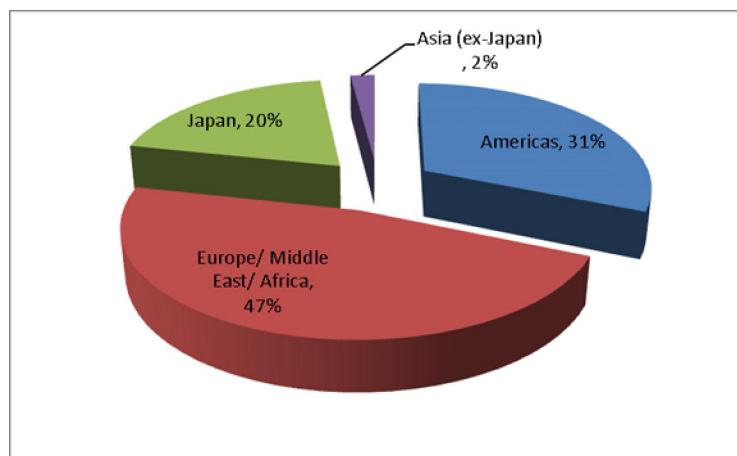
Table 1.2. Type of entity responding to the 2012 ISDA Margin Survey

	2012	2011
Bank/ Broker Dealer	43	64
Mutual Fund	1	1
Energy/ Commodity Firm	1	4
Hedge Fund	1	1
Corporate	0	3
Insurer	2	1
Government-sponsored Entity	1	2
Government Agency	0	1
Other	2	6
Total	51	83

Comparison of 2011 and 2012 results in tables 1.1 and 1.2 show a clear decline in the number of respondents, with 32 less in this year's survey of which 21 were banks / broker dealers. Likely causes of a reduction of respondents include the need to focus efforts and resources on preparation for pending regulatory reform and market volatility. Although there is the risk that this could have an effect on the completeness of the survey results whereby a lesser proportion of the market is represented, this is mitigated by the continued survey submission by the large dealer banks, which likely cover the broad spectrum of counterparty relationships. This is substantiated by a marked increase in collateral assets within section 2 below. The decline in respondents is compensated for within aspects of the survey by the provision of estimated values to account for the remainder of the market (in section 2 for example).

Chart 1.1 shows the geographic distribution of survey respondents. 47 percent of institutions were based in Europe, the Middle East or Africa and 31 percent were based in the Americas.

Chart 1.1 Geographic Distribution of Survey Respondents



2. COLLATERAL ASSETS

2.1. ESTIMATES OF TOTAL COLLATERAL OUTSTANDING FOR NON-CLEARED OTC TRANSACTIONS

The estimated amount of collateral in circulation in the uncleared OTC derivatives market at the end of 2011 was approximately \$3.6 trillion, which is up 24 percent from last year's estimated amount of \$2.9 trillion. The \$3.6 trillion estimate of total collateral in use is based on a total reported collateral amount of \$2.4 trillion; the estimation procedure to derive the Collateral in circulation value from the reported collateral amount is described in Appendix 2. Measured over the past 12 years, the growth in estimated collateral in circulation has remained relatively consistent, resulting in a compound annual growth rate of 24 percent.

Chart 2.1. Growth in value of reported and estimated collateral (USD billions) as at 30 Dec 2011

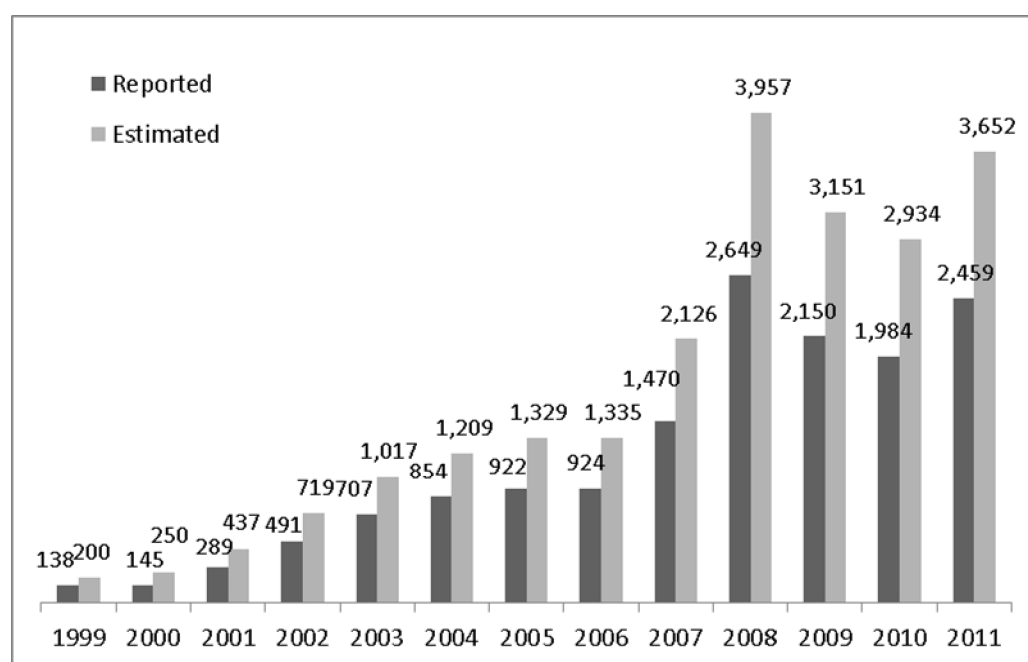
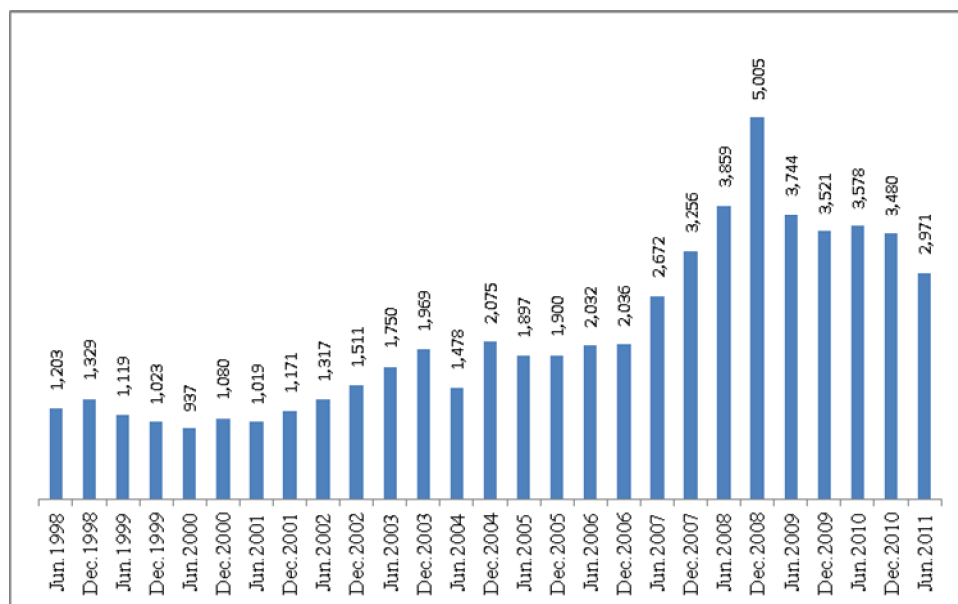


Chart 2.2 below displays data on aggregate counterparty credit exposure collected by the Bank for International Settlements (BIS). The data reflects the net mark-to-market value of counterparty exposures, taking into account the benefits of close-out netting, but before taking into account the effect of collateral in reducing risk exposure. As the chart shows, aggregate counterparty exposure peaked at US \$5,005 billion in December of 2008 but has now fallen to US \$2,971 in June 2011.

When comparing the recent figures from Charts 2.1 and 2.2 it is interesting to note a 15 percent decline in counterparty credit exposure in 2011 but a 25 percent increase in the collateral in circulation. However, it is important to consider that the counterparty exposure data is as at June 2011 and the collateral balances taken as at 2011 year end. In the preceding months before year end, the industry experienced a considerable rise in margining and collateral activity, contributed to by factors such as the credit rating downgrades of financial firms, the Eurozone debt crisis and decline in interest rates, with shifts in yield curves causing mark-to-market increases. These are possible causes of the rise in observed collateral in circulation since August 2011.

When compared over a greater length of time, the data underlying these two charts reveals a trend toward a steady increase in collateral in circulation. Over the ten-year period from 2001 to 2011 the amount of collateral in circulation has grown at a 24 percent compounded annual growth rate while gross credit exposure, as measured by the BIS, has grown at a 14 percent compounded annual rate.

Chart 2.2. Gross Credit Exposure of OTC Derivatives (USD billions) as at 30 June 2011



Source: Bank for International Settlements

A year-over-year change in the reported quantity of collateral received and delivered varies across firms, sometimes significantly.

TYPES OF ASSETS USED AS COLLATERAL

Table 2.1 shows the breakdown of reported collateral by asset category. The use of cash and government securities as collateral remains predominant, constituting 90.4 percent of collateral received and 96.8 percent of collateral delivered, as would be expected given the recent focus on collateral quality and counterparty risk.

The use of cash collateral alone remains very high, consistently around 80 percent for the past several years. Traditionally this has been viewed as reflecting the operational simplicity associated with cash collateral, but we also note a number of business trends that strongly mitigate in favor of cash as the collateral asset of choice. These include the development of a large cleared market for OTC derivatives, primarily between dealers. Variation margin against these transactions requires collateralization in cash, and in order to align collateral flows across the cleared and uncleared parts of the swap market, there is an incentive to use cash as collateral in the bilateral, uncleared market. Another contributing factor to the continued high use of cash collateral may be the low interest rate environment and relatively low cost of funding cash compared to early 2008.

Table 2.1. Value of collateral received and delivered by respondents against non-cleared OTC transactions, USD millions

		Collateral Received		Percent		Collateral Delivered		Percent	
		2012	2011	2012	2011	2012	2011	2012	2011
Cash	USD	436,018	389,908	33.0	35.9	357,219	325,678	31.3	36.2
	EUR	537,450	429,500	40.8	39.6	438,191	331,542	38.4	36.9
	GBP	23,871	18,160	1.8	1.7	29,316	21,020	2.6	2.3
	JPY	27,222	24,232	2.1	2.2	25,267	26,839	2.2	3.0
	Other	14,988	15,752	1.1	1.5	11,722	10,365	1.1	1.2
	Subtotal	1,039,549	877,552	78.8	80.9	861,715	715,444	75.6	79.6
Government Securities	United States	60,926	38,606	4.6	3.6	78,974	48,409	6.9	5.4
	European Union	30,733	22,943	2.3	2.1	109,677	66,705	9.6	7.4
	UK	13,459	10,948	1.1	1.0	22,736	13,414	2.0	1.5
	Japan	33,064	21,005	2.5	1.9	22,738	17,438	2.0	1.9
	Other	13,869	13,196	1.1	1.2	7,237	8,854	0.7	1.0
	Subtotal	152,051	106,697	11.6	9.8	241,362	154,821	21.2	17.2
Others	Government agency/Securities GSEs	28,607	17,425	2.2	1.6	12,861	10,075	1.1	1.1
	Supranational bonds	1,090	2,067	0.1	0.2	2,139	723	0.2	0.1
	US Municipal Bonds	1,789	1,449	0.1	0.1	0	0	0.0	0.0
	Covered Bonds	914	6,545	0.1	0.6	2,097	255	0.2	0.0
	Corporate Bonds	40,711	28,514	3.1	2.7	13,090	4,349	1.1	0.5
	Letters of Credit	9,125	9,917	0.7	0.9	0	600	0.0	0.1
	Equities	24,815	25,453	1.8	2.3	902	6,896	0.1	0.7
	Metals and Other Commodities	148	101	0.0	0.0	0	653	0.0	0.1
	Other Assets	19,661	9,228	1.5	0.9	5,997	5,592	0.5	0.6
Subtotal	126,860	100,699	9.6	9.3	37,086	29,143	3.2	3.2	
Total Collateral		1,318,460	1,084,949			1,140,163	899,408		
Grand Total						2,458,623	1,984,357		

Note: Collateral Received differs from Collateral Delivered because Survey results are not based on the responses of all firms engaged in collateralized derivatives transactions.

2.2. DISPOSITION OF COLLATERAL DELIVERED FOR NON-CLEARED OTC TRANSACTIONS

The 2012 Survey contains several questions regarding the disposition of collateral received and delivered to meet exposures from non-cleared OTC transactions. The first of these questions asked whether respondents had made arrangements to segregate collateral posted as Independent Amounts (IA) and what types of arrangements were made to secure that collateral. The second asked whether respondents rehypothecate or re-use collateral, and what percentage of collateral received in connection with OTC derivatives transactions is rehypothecated.

Table 2.2 below summarizes responses to the question of where IA are held. IA are analogous to initial margin required by futures clearinghouses to collateralize potential counterparty exposures. Like initial margin, IA is designed to ensure that derivatives positions remain collateralized between margin calls². It should be noted that although the terms "Independent Amount" (bilateral) and "Initial Margin" (clearing) can be thought of as equivalent and are often used interchangeably in the market, this superficial equivalence should not give the impression that they are calibrated similarly. To the contrary, IA and IM exist in two totally different contexts: IA provides protection against default loss in conjunction with bilateral Variation Margin and regulatory capital; whereas IM provides protection in conjunction with clearinghouse Variation Margin and the rest of the clearinghouse "waterfall"³. Survey respondents reported that most of the Independent Amount is not segregated, with 73.8 percent of IA received and 72.2 percent of IA delivered being comingled with variation margin. Holding of IA and variation margin together continues to be industry standard both contractually and operationally. However, although segregation of IA is not currently mandated within regulation (proposals in the US and Europe suggest that segregation should be offered to clients) it is interesting to note that the ability to segregate has been made increasingly available to counterparties over the past 3 years on a voluntary basis, and has led to adoption of 26 percent of IA received and 27.8 percent of IA delivered being segregated in some respect.

Table 2.2. Disposition of Independent Amount (*percent of total collateral amount*)

	Independent Amount Received		Independent Amount Delivered	
	all	large	all	large
Comingled with variation margin	73.8	74.1	72.2	80.2
Segregated on books and records of dealer ⁴	4.0	4.0	12.4	17.1
Segregated with Third Party custodian ⁵	4.8	4.5	5.2	2.1
Segregated in Tri-party Arrangement ⁶	17.4	17.4	10.2	0.6

² ISDA released an Independent Amount Whitepaper that contains a comprehensive analysis of the issues surrounding Independent Amounts. See, "Independent Amounts," ISDA (March 1, 2010), at www.isda.org.

³ The waterfall of protections against default impacting a clearing house is: (a) Variation Margin, (b) Initial Margin of the client, (c) Initial Margin of other clients in some CCP models, but not all, (d) the Member Default Fund of the clearing house, (e) the capital of the clearing house itself, and (f) the proceeds from a cash call made on member firms of the clearing house. Note, this is a generalized waterfall description - specific elements and sequence will differ from one CCP to another.

⁴ To include Segregated Direct Dealer Holding of IA and Segregated Dealer Affiliate Holding of IA as per the descriptions within the ISDA Independent Amount White Paper.

⁵ Third Party Custodian of Dealer Holding of IA as per the descriptions within the ISDA Independent Amount White Paper.

⁶ Tri-Party Collateral Agent Holding of IA as per the descriptions within the ISDA Independent Amount White Paper.

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 IA: dealers are much more likely to require IA to be posted than non-dealers. Also there is a noted difference between the IA delivered versus received again due to the fact the majority of the respondents are broker dealers / banks and therefore typically receive IA rather than post it.

The practice of collateral re-use involves the sale, investment, re-delivery or other use of collateral received by a party. All collateral received under title transfer forms of collateral agreement has the intrinsic property of being re-usable, because title to the asset has been transferred. Collateral received under security interest forms of collateral agreement may have the right of re-use (called *rehypothecation*), but this must be granted as a right by the delivering party; ISDA CSAs generally include this right of re-use unless the parties specifically remove it.

Collateral re-use is very common across the industry and is of intrinsic importance in the reduction of collateral funding costs.

Table 2.3. Percent of collateral re-used

Percent posted in connection with OTC derivatives transactions that is eligible to be re-used under the terms of the collateral arrangement

	Large, Average	Medium, Average	Small, Average
Cash	95.9	81.4	100.0
Securities	67.3	64.6	100.0
Other	14.6	6.1	0
Total	91.2	80.4	100.0

Percent posted in connection with OTC derivatives transactions that is actually re-used

	Large, Average	Medium/Small, Average	Medium/Small, Median
Cash	91.1	62.8	75.3
Securities	43.8	26.3	0
Other	2.7	4.3	0
Total	83.4	58.4	75.3

In the 2012 Survey there continues to be a significant proportion of cash being reused, particularly amongst large firms, with 91 percent of collateral posted (where 96 percent is eligible to be rehypothecated under the terms of the collateral arrangement). Cash is fully fungible and therefore inherently reusable as collateral both under securities interest agreements (with rehypothecation rights) and title transfer agreements.

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

2.3 CENTRAL COUNTERPARTIES

This year, the survey asked those dealer respondents to report information regarding the initial and variation margin levels they had as both an executing broker and derivatives clearing member. **Executing broker** refers to firms that execute and clear OTC derivatives on their own behalf and have General Clearing Membership of a clearing house (otherwise known as house clearing). **Derivatives Clearing Member** refers to where a firm will clear OTC derivatives on behalf of a third party or client (otherwise known as client clearing).

The role of Central Counterparties (CCPs) in clearing trades and in managing collateral is of growing importance and, as new regulation comes into fruition through the next year, future surveys will report key statistics on the proportion of collateral, level of firms engaged in margining of cleared OTC transactions and the number of clearing agreements in place.

Table 2.4. Collateral Outstanding with a Central Counterparty

Collateral outstanding with a central counterparty: dealers acting as executing broker (house clearing) in USD millions

Initial margin - Delivered	22,159
Variation Margin - Received	48,382
Variation Margin - Delivered	36,230
Total - Received	48,382
Total - Delivered	58,390

Collateral outstanding with a central counterparty: dealers acting as a derivatives clearing member (client clearing), in USD millions

Initial margin - Delivered	1,245
Variation Margin - Received	1,202
Variation Margin - Delivered	2,978
Totals - Received	1,202
Totals - Delivered	4,223

3. EXTENT OF COLLATERAL USE

3.1 NUMBER AND TYPES OF COLLATERAL AGREEMENTS (SUPPORTING NON-CLEARED OTC TRANSACTIONS)

Respondents to the 2012 Margin Survey report 137,869 active⁷ collateral agreements in place for non-cleared OTC transactions, compared with 149,518 in the 2011 Survey (see Chart 3.1 below), an 8 percent decrease. There are a number of factors contributing to a reduction compared to the peak in 2009. These include counterparty consolidation whereby legacy collateral agreements are discontinued over time due to mergers, a change to report in the survey on just active agreements (with exposure and / or collateral balances), effort by firms to consolidate multiple agreement types for the same legal entity (where a credit support deed, annex and long form confirmation may for example be in place), and possibly the lower survey response rate from market participants. As per table 2.1, there has been a noticeable increase in the reported collateral in circulation, and therefore it is unlikely that a reduction in active collateral agreements is reflective of reduced margining and collateral activity throughout the industry.

Chart 3.1. Growth of collateral agreements reported by respondents as of year end, 1999-2011

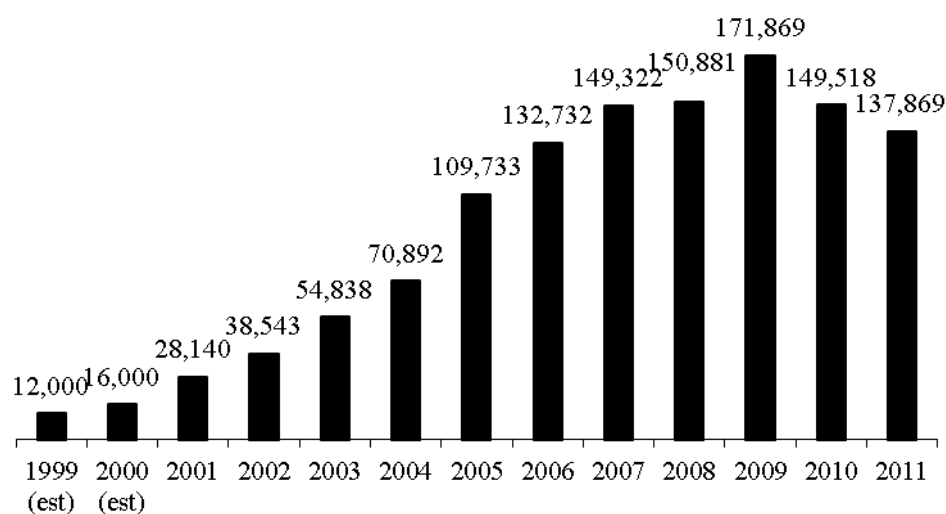


Table 3.1 shows the split between unilateral and bilateral agreements and between ISDA CSA⁸ and non-ISDA CSA agreements. As in previous years, ISDA CSA documentation is the most frequent choice among practitioners at about 85 percent. Non-ISDA CSA documents include bespoke margin agreements, long-form 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 88 percent of their ISDA CSAs and 84 percent of all agreements are bilateral.

⁷ Active collateral agreements are those with outstanding exposure and / or collateral balances.

⁸ For these purposes we include ISDA Credit Support Annexes according to New York, English and Japanese laws, ISDA Credit Support Deeds, and ISDA Margin Provisions.

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	ISDA collateral agreements	Non-ISDA agreements	Total number Bilateral	
14,212	8,001	22,213	103,398	12,258	115,656	137,869
10.3%	5.9%	16.1%	74.9%	9.0%	83.9%	100%

3.2 COLLATERALIZATION LEVELS

To measure collateral coverage, the Survey asked respondents to report (1) percent of trade volume subject to active credit support agreements, and (2) percent of counterparty relationships covered by an active collateral agreement

Percent of trade volume is the number of OTC derivative trades subject to any collateral agreement divided by the total number of derivative trades.

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 56 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. Similarly, most users of commodity derivatives also tended to be non-financial companies, which are less likely to post collateral than financial firms⁹. In interpreting this data, 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.

⁹ See "2009 Derivatives Usage Survey," in *ISDA Research Notes* (2009), No. 2.

Table 3.2. Percent of trades subject to collateral agreements, by OTC derivative product type

	ALL, Average		Large Dealers, Average	
	2012	2011	2012	2011
All OTC Derivatives	71.4	69.8	83.7	80.2
Fixed Income Derivatives	78.1	78.6	89.9	87.9
Credit Derivatives	93.4	93.2	96.1	95.8
FX Derivatives	55.6	58.2	70.6	65.2
Equity Derivatives	72.7	72.1	85.3	73.2
Commodities, including precious metals	56.3	59.6	63.9	62.9

Collateralization rates are uniformly higher among the large dealers than for the rest of the sample. Large dealers report that 83 percent of their overall trade volume is subject to collateral agreements with percentages ranging between 96 percent of their credit derivatives trades on the high end and 64 percent of commodity derivatives transactions on the low end.

4. COLLATERAL MANAGEMENT PRACTICES

4.1 COLLATERALIZATION LEVELS

As in past years, the 2012 Survey asked respondents whether they reconcile their portfolios and how often reconciliation is performed. This year 100 percent of the large dealer firms and 75 percent of all respondents indicated that they performed some form of pro-active portfolio reconciliation.

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

Table 4.1. Reconciliation frequency by percentage of OTC trade volume (*Percentage*)

	<u>All</u>		<u>Large</u>	
	2012	2011	2012	2011
Daily	47.5	30.9	70.8	60.5
Weekly	6.9	9.9	2.1	4.4
Monthly	10.7	12.5	5.0	8.0
Quarterly	5.9	3.8	1.2	0.1
Annually	1.1	0.7	0.9	1.2
Not regularly reconciled	27.9	42.2	20.0	25.5
Total	100.0	100.0	100.0	100.0

For all firms in 2012, there has been an 8 percent increase in the number of trades regularly reconciled, with a noticeable increase in the percentage of portfolios reconciled daily, rising from 31 percent to 47 percent for all firms, and from 61 percent to 71 percent for the large firms.

In addition there is a noticeable decline in the percentage of trades not regularly reconciled, down to 28 percent from 42 percent for all firms.

These results are a direct reflection of the regulatory commitments by the signatories of the Letter to the Federal Reserve to reduce the threshold for routine (at least monthly) reconciliation of collateralized portfolios from those exceeding 1,000 transactions to those exceeding 500 transactions (started June 30, 2011).

4.2 COLLATERAL VALUATION

The last 12 months has seen increasing focus on the valuation of OTC derivatives, and in particular two aspects of pricing for margining purposes. The first is a progressive move towards using OIS (Overnight Index Swap) rates when discounting to calculate the present value of future OTC derivative cash flows. The second involves the inclusion of the embedded economic terms of the credit support document within the valuation. The adoption of these valuation methodologies for collateral margining purposes is not yet widely prevalent within the market and a phased approach is being adopted by product type by those participating firms.

To this effect a series of new questions were included within the 2012 survey, where respondents were asked whether at least a small subset of OTC derivatives were being priced using OIS and CSA discounting, and if so which product types were applicable.

Out of all 51 respondents only 12 provided responses to this section, of which 58 percent reported to be pricing using OIS discounting and 67 percent pricing using CSA discounting for at least some transactions and/or agreements.

Table 4.2 shows, of those 12 respondents, the percentage of firms pricing (for margining purposes) at least a subset of OTC derivatives according to OIS or CSA discounting methodologies.

Table 4.2. Percentage of 12 respondent firms pricing at least some OTC derivatives transactions for margining purposes with reference to OIS and CSA discounting, by OTC derivative product type

	OIS DISCOUNTING	CSA DISCOUNTING
Commodity Derivatives	16.6	25.0
Credit Derivatives	33.3	33.3
Equity Derivatives	25.0	33.3
Fixed Income Derivatives	58.3	50.0
FX Derivatives	16.6	33.3

4.3 OPTIMISATION

The efficient and effective use of collateral has become of greater importance to market participants. Optimisation refers to the ability to post and re-use collateral according to delivery preferences such as cost of funding and delivery, liquidity and market capitalisation, embedded haircuts in the CSA, availability of assets to the delivering party, cost of reinvestment and yield, ability to reuse. As collateralisation becomes more commoditised through process improvement and automation there is an increasing trend to introduce business rules around maximising the efficiency and minimising the cost of collateral.

In this year's Survey a new set of questions was posed to understand to what extent firms are optimising collateral use. Table 6.1 shows, out of the 34 firms (67 percent) that responded positively around whether they currently optimise collateral delivery, where the collateral optimisation function sits within their organisation.

Table 4.3. Percentage of all respondents proactively optimising collateral delivered, by location within firms

	All	Large Dealers
Front Office	24.7	40.0
Operations	10.7	20.0
Credit	4.0	0.0
Corp. Treasury	9.3	6.7
Other	18.0	33.3
No Optimisation	33.3	0.0

Table 6.2 shows, out of the 34 firms (67 percent) that responded positively around whether they currently optimise collateral delivery, how often they proactively optimise collateral delivery.

Table 4.4. Frequency of optimisation of collateral delivered (*Percentage*)

	All	Large Dealers
When Material	45.3	28.6
Daily Basis	21.3	71.4
No Optimisation	33.3	0.0

Results from respondents show 68 percent of those who do perform proactive optimisation of collateral delivered only undertake this practice when the movement of collateral is materially sufficient to warrant investigation and operational effort. A smaller proportion (32 percent) of all firms optimising collateral delivery performs this on a daily basis. It is interesting to note in addition, that 71 percent of the large dealers in this year's survey optimise daily.

Appendix 1. Firms responding to the 2012 ISDA Margin Survey

Largest dealer banks

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

ING Bank N.V.
 Landeskbank Baden Wurttemberg
 Mitsubishi UFJ Morgan Stanley Securities
 Co. Ltd.
 Mitsubishi UFJ Trust and Banking
 Corporation
 Mizuho Capital Markets Corporation
 Mizuho Corporate Bank, Ltd
 Mizuho Securities, Ltd
 Nordea Bank AB
 Oversea-Chinese Banking Corporation Ltd

All other respondents

Aozora Bank
 Banco Bilbao Vizcaya Argentaria, S.A.
 Bank of Montreal
 Bank of Nova Scotia
 Bank of Tokyo-Mitsubishi UFJ Ltd
 Bayerische Landesbank
 CECA
 Citadel Investment Group LLC
 Credit Agricole CIB
 DNB Bank ASA
 Eksportfinans ASA
 Government Debt Management Agency Pte
 Ltd
 HypoVereinsbank AG ó Member of
 UniCredit Group

Pacific Life Insurance Company
 Prudential Global Funding LLC
 Rabobank International
 Raiffeisen Bank International AG
 Royal Bank of Canada
 Shinsei Bank, Ltd
 Southwest Gas Corporation
 Standard Chartered Bank
 TD Bank Group
 The Sumitomo Trust & Banking Co, Ltd
 Webster Bank
 Wellington Management Company, LLP
 Zurcher 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 \$3.7 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.