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## ISDA Margin Survey 2013

June 2013

ISDA's annual Margin Survey provides information about the use of collateral in the OTC derivatives business. The data used in the 2013 Margin Survey is sampled as of December 31, 2012. Over the past 13 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.

[www.isda.org](http://www.isda.org)

## **INTERNATIONAL SWAPS AND DERIVATIVES ASSOCIATION**

Information about ISDA and its activities is available on the Association's web site: [www.isda.org](http://www.isda.org).

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 800 member institutions from 60 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.

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## **SAPIENT GLOBAL MARKETS**

Sapient were contracted by ISDA to serve as consultants to the 2013 Margin Survey and were responsible for the collection and aggregation of the individual data submissions. Sapient Global Markets, a division of Sapient® (NASDAQ: SAPE), is a leading global provider of business and technology services for capital and commodity market participants, intermediaries and regulators. It provides strategy and advisory services, design and implementation of advanced technology solutions, and delivery through a proven, globally distributed model. Sapient Global Markets helps its clients optimize and transform their business processes, capitalize on business and operational opportunities, adapt to regulatory mandates, and foster business innovation and growth. The company operates in key financial and commodity centres in Europe, North America and Asia.

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## SUMMARY

1. Collateral in circulation in the non-cleared OTC derivatives market rose 1 percent during 2012, from US\$ 3.65 trillion at end-2011 to US \$ 3.70 trillion as at December 31, 2012.
2. The number of active collateral agreements (those with exposure and / or collateral balances) supporting non-cleared OTC derivatives transactions was 118,853 at end-2012, of which 87 percent are ISDA agreements. About 88 percent of all collateral agreements are bilateral, an increase of 4 percentage points over last year.
3. 87.4 percent of all collateral agreements are with counterparties whose portfolios of collateralized transactions include less than 100 OTC derivatives. 0.4 percent of all collateral agreements are with counterparties whose portfolios of collateralized transactions include more than 5000 trades.
4. Among all firms responding to the survey, 73.7 percent of all OTC derivatives trades (cleared and non-cleared) are subject to collateral agreements. For large firms, the figure is 80.7 percent.
5. Responding firms also reported that 69.1 percent of all non-cleared trades are subject to collateral agreements. For large firms, the figure is 75.3 percent.
6. On an asset class basis, 83.0 percent of all CDS transactions (79.4 percent of non-cleared) and 79.2 percent of all fixed income transactions (72.5 percent of non-cleared) are subject to collateral agreements. For large firms, the figures are 96.3 and 89.4 percent, respectively (and are 94.5 percent and 74.9 percent, respectively, for non-cleared).
7. Portfolio reconciliation, which refers to the matching of the population, trade economics and mark-to-market of outstanding trades in a collateralized portfolio, is widely used and considered best market practice. For all firms in 2013, the survey evidences a clear effort to increase the frequency of portfolio reconciliation.
8. With respect to collateral types, cash used as collateral represents 79.5 percent of collateral received and 78.7 percent of collateral delivered, which is an increase from 78.8 and 75.6 percent respectively last year. Government securities constitute 11.6 percent of collateral received and 18.4 percent of collateral delivered this year, consistent with last year's results.

## 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 2013 Margin Survey is sampled as of December 31, 2012. Over the past 13 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 2013 Survey more attention is paid to collateralization of cleared derivatives, in addition to coverage of the bilateral, non-cleared 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.

Sapient served as consultants to this year's Margin Survey; the consultants collected and aggregated individual responses to the Survey. All data obtained from Survey responses were kept in strict confidence. Access by ISDA and Sapient staff is strictly limited, and the data is not shared with employees of other member firms or with any other outside party.

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.

### 1.1. COLLATERAL AS A RISK MANAGEMENT TOOL

Credit risk exists in the OTC derivatives market whenever a counterpart to a transaction has an obligation to make payments or deliveries in the future. As discussed in numerous ISDA publications, there are several methods 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<sup>1</sup>. 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 transactions.

Collateralization works best in those cases where the volume of activity is sufficient to warrant bearing the operational and procedural burdens associated with the sophisticated collateral process, provided that a legally enforceable claim can be established against collateral. Therefore, there are cases where it is simply more cost efficient or legally effective to rely on other methods of credit risk mitigation. Nonetheless, collateralization remains among the most widely used methods of mitigating 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.

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<sup>1</sup> ISDA's "Market Review of OTC Derivative Bilateral Collateralization Practices" can be found on ISDA's website at [www.isda.org](http://www.isda.org).

## 1.2. ABOUT THE SURVEY RESPONDENTS

A total of 78 ISDA member firms responded to the 2013 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. 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 2013 Survey, 14 of the respondents were classified as large firms, 33 were classified as medium, and 31 were classified as small firms.

Comparison of 2012 and 2013 results in tables 1.1 and 1.2 show a clear increase in the number of respondents, with 27 more in this year's survey, of which 20 were banks / broker dealers. Likely causes of an increase of respondents include preparation for pending regulatory reform. Of the 78 firms that participated in 2013 40 also participated in 2012.

**Table 1.1: Profile of firms responding to the 2013 ISDA Margin Survey**

*Number of respondents*

Size Class	Number of agreements	Number of respondents 2013	Number of respondents 2012
Large	>3,000	14	14
Medium	100 - 3,000	33	23
Small	0 - 100	31	14
<b>Total</b>		<b>78</b>	<b>51</b>

Table 1.2 classifies respondents according to firm or entity type; 63 of the 78 respondents were banks and broker-dealers. The remaining participants consisted of hedge funds, insurers, government agencies and government-sponsored entities.

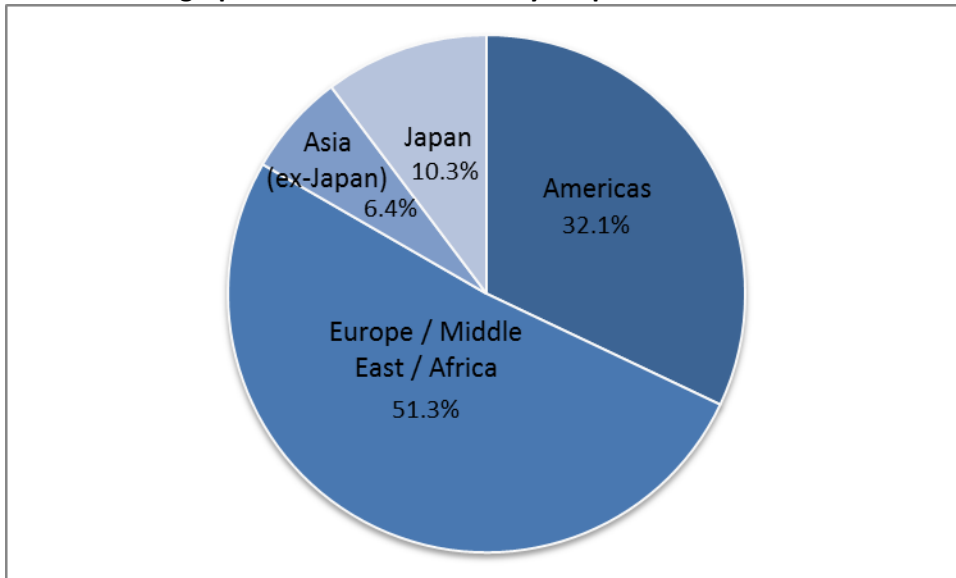
**Table 1.2: Type of entity responding to the 2013 ISDA Margin Survey**

*Number of respondents*

Type of entity	2013	2012
Bank	63	43
Asset Manager	5	1
Hedge Fund	2	1
Energy Trading Firm	1	1
Insurer	2	2
Other	5	3
<b>Total</b>	<b>78</b>	<b>51</b>

Chart 1.1 shows the geographic distribution of survey respondents. 51 percent of institutions were based in Europe, the Middle East or Africa and 32 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 reported amount of collateral in circulation, the collateral balances held or posted that have been received or delivered (respectively) by two counterparts to an OTC derivatives contract, in the non-cleared OTC derivatives market at the end of 2012 was approximately \$2.67 trillion, which is up over 8 percent from last year's estimated amount of \$2.46 trillion. Collateral in circulation is the total collateral received and delivered against non-centrally cleared transactions and is a useful indicator of the total amount of collateral used to mitigate the credit risk of OTC derivatives.

The \$3.7 trillion estimate of total collateral in circulation is based on a total reported collateral amount of \$2.67 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 14 years, the growth in estimated collateral in circulation has remained relatively consistent, resulting in a compound annual growth rate of 23 percent.

It is interesting to note that the overall level of collateral in circulation has remained essentially static year on year, even though more business is now being cleared, and is thus excluded from the results reported here, suggesting continued underlying growth in the collateralization of bilateral OTC derivatives. Additionally, the levels of bilaterally compressed transactions continued on a regular basis through 2012 with more than \$48.7 trillion in Interest Rate Derivatives and Credit Derivatives compressed on a net basis<sup>2</sup>. Compression involves the tearing up of matched trades or trades that do not contribute risk to a dealer's portfolio. In recent years, the large volume of cleared trades that have been compressed has worked to reduce the percentage of the OTC derivatives market that has been cleared. As with IRS, compression of cleared CDS trades leads to a significant reduction in the percent of CDS that remain open in a cleared state. ISDA believes that this effect has been particularly dramatic in the CDS space as the instruments have become completely standardized following the Big Bang and Small Bang protocols in 2009, and thus are able to be compressed very efficiently. Furthermore, clearinghouses that clear CDS have an active program of compressing cleared trades. For example, ICE reports that the gross notional amount of transactions cleared from the commencement of clearing in 2009 through June 29, 2012, is approximately \$31.2 trillion. If compression had not occurred, ISDA estimates that a significantly greater percentage of CDS would continue to exist in clearinghouses, increasing the percentage of the market that is cleared. For CDS, compression continues to reduce operational risk and enables more efficient management of capital requirements<sup>3</sup>.

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<sup>2</sup> Sources: TriOptima, Markit/ICE

<sup>3</sup> Source: ISDA Mid-Year 2012 Market Analysis

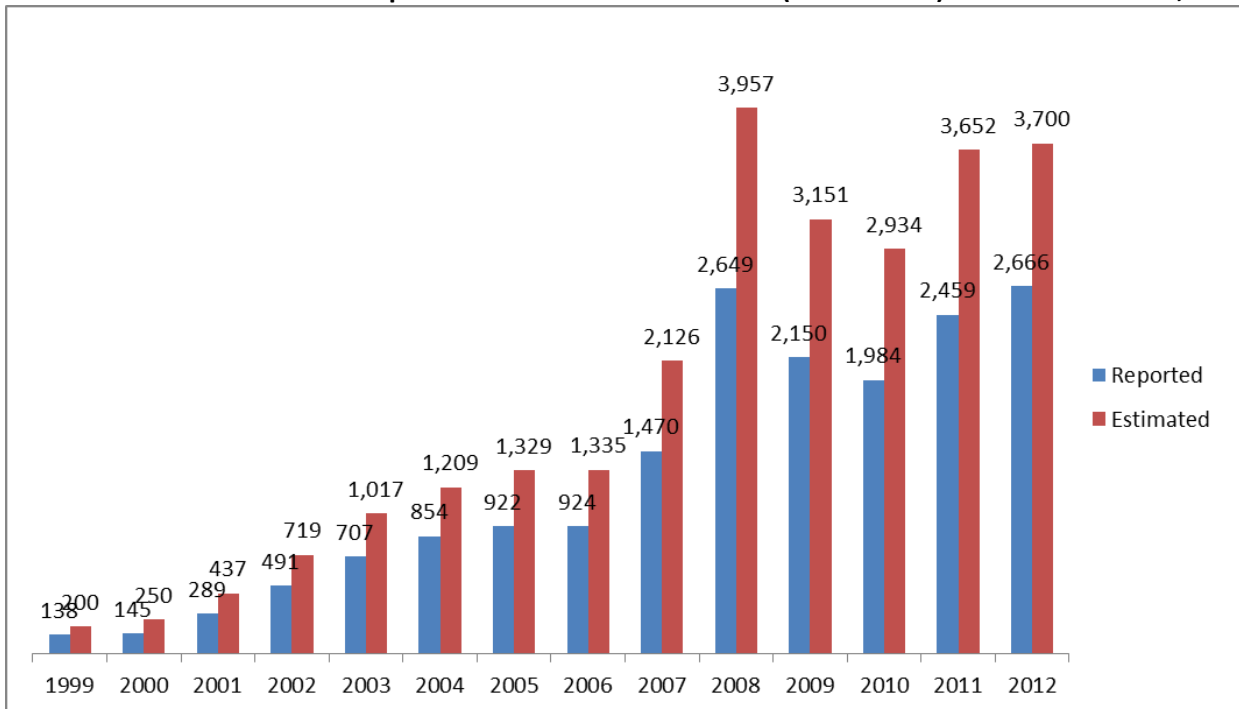
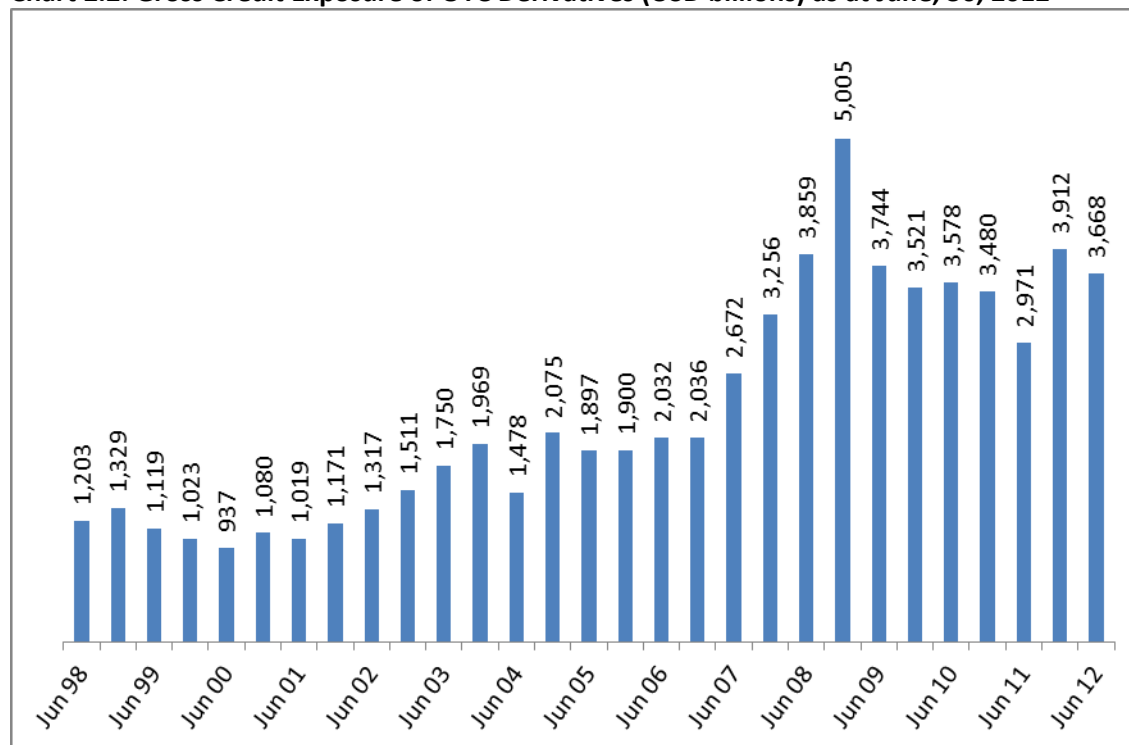
**Chart 2.1: Growth in value of reported and estimated collateral (USD billions) as at December 31, 2012**

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 trillion in December of 2008 but has now fallen to US \$3,668 trillion in December 2012.

When comparing the recent figures from Charts 2.1 and 2.2 it is interesting to note an 8 percent decline in counterparty credit exposure in 2012 but an 8 percent increase of reported collateral in circulation. This suggests that more exposure is being collateralized.

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 period from 2002 through 2012 the amount of reported collateral in circulation has grown at a 17 percent compounded annual growth rate while gross credit exposure, as measured by the BIS, has grown at a 10 percent compounded annual rate.



**Chart 2.2: Gross Credit Exposure of OTC Derivatives (USD billions) as at June, 30, 2012**

Source: Bank for International Settlements

## 2.2. 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 91.1 percent of collateral received and 97.1 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. Historically it is believed that this empirical preference for cash arose as a result of the operational simplicity associated with cash collateral, but increasingly the decision is driven by economic considerations:

- The development of a large cleared market for OTC derivatives, primarily between dealers, for which Variation Margin is required in cash.
- The importance of aligning collateral flows with future swap cashflows, so that the collateral effectively funds the future cashflows with minimized currency and basis risk; this is one of the underlying reasons behind ISDA's development of the Standard Credit Support Annex (SCSA), which like the cleared market requires Variation Margin to be cash only.
- The increasing importance of maintaining economic consistency across the cleared and non-cleared parts of the swap market, which is facilitated by the use of cash collateral, as well as collateral arrangements such as the SCSA which produce bilateral collateralization economics which are essentially identical to those that apply in cleared venues for Variation Margin.

- The low interest rate environment means that cash is, often, the cheapest-to-deliver form of collateral under most collateral agreements.

**Table 2.1: Value of collateral received and delivered by respondents against non-cleared OTC transactions**

USD millions

Type of Collateral		Collateral Received		Percentage		Collateral Delivered		Percentage	
		2013	2012	2013	2012	2013	2012	2013	2012
Cash	USD	419,710	436,018	29.5%	33.0%	357,792	357,219	28.8%	31.3%
	EUR	627,725	537,450	44.2%	40.8%	537,440	438,191	43.2%	38.4%
	GBP	34,073	23,871	2.4%	1.8%	40,379	29,316	3.2%	2.6%
	JPY	34,736	27,222	2.4%	2.1%	26,322	25,267	2.1%	2.2%
	Other	14,357	14,988	1.0%	1.1%	16,670	11,722	1.3%	1.1%
	<b>Subtotal</b>	<b>1,130,602</b>	<b>1,039,549</b>	<b>79.5%</b>	<b>78.8%</b>	<b>978,603</b>	<b>861,715</b>	<b>78.7%</b>	<b>75.6%</b>
Government Securities	United States	54,673	60,926	3.8%	4.6%	78,724	78,974	6.3%	6.9%
	European Union	31,471	30,733	2.2%	2.3%	92,410	109,677	7.4%	9.6%
	United Kingdom	21,286	13,459	1.5%	1.1%	20,861	22,736	1.7%	2.0%
	Japan	37,293	33,064	2.6%	2.5%	30,056	22,738	2.4%	2.0%
	Other	19,841	13,869	1.4%	1.1%	7,338	7,237	0.6%	0.7%
	<b>Subtotal</b>	<b>164,563</b>	<b>152,051</b>	<b>11.6%</b>	<b>11.6%</b>	<b>229,389</b>	<b>241,362</b>	<b>18.4%</b>	<b>21.2%</b>
Others	Government agency securities / GSEs	31,223	28,607	2.2%	2.2%	15,356	12,861	1.2%	1.1%
	Supranational Bonds	1,044	1,090	0.1%	0.1%	2,112	2,139	0.2%	0.2%
	US Municipal Bonds	4,225	1,789	0.3%	0.1%	29	0	0.0%	0.0%
	Covered Bonds	3,187	914	0.2%	0.1%	2,277	2,097	0.2%	0.2%
	Corporate Bonds	34,904	40,711	2.5%	3.1%	8,437	13,090	0.7%	1.1%
	Letters of Credit	6,138	9,125	0.4%	0.7%	728	0	0.1%	0.0%
	Equities	31,809	24,815	2.2%	1.8%	4,748	902	0.4%	0.1%
	Metals and Other Commodities	34	148	0.0%	0.0%	0	0	0.0%	0.0%
	Other	13,976	19,661	1.0%	1.5%	2,505	5,997	0.2%	0.5%
	<b>Subtotal</b>	<b>126,541</b>	<b>126,860</b>	<b>8.9%</b>	<b>9.6%</b>	<b>36,193</b>	<b>37,086</b>	<b>2.9%</b>	<b>3.2%</b>
<b>Total Collateral</b>		<b>1,421,706</b>	<b>1,318,460</b>			<b>1,244,185</b>	<b>1,140,163</b>		
		<b>2013</b>	<b>2012</b>						
<b>Grand Total (Received and Delivered)</b>		<b>2,665,890</b>	<b>2,458,623</b>						

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

### 2.3. TREATMENT OF COLLATERAL DELIVERED FOR NON-CLEARED OTC TRANSACTIONS

The 2013 Survey contains several questions regarding the treatment 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 is held. IA is analogous to initial margin required by futures clearinghouses to collateralize potential counterparty exposures. Like initial margin, IA is designed to protect against the gap risk that may arise between margin calls<sup>4</sup>. 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”<sup>5</sup>.

Survey respondents reported that most of the Independent Amount is not segregated, with 64.9 percent of IA received and 69.2 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 (the Dodd Frank Act in the US and proposals in Europe provide 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 years on a voluntary basis, and has led to adoption of 35.1 percent of IA received and 30.8 percent of IA delivered being segregated in some respect. Respectively, this is an increase of 8.9 and 3.0 percentage points over last year’s results of 26.2 and 27.8 percent.

Since IA segregation has been offered by firms on a voluntary basis for several years at this point, this suggests that as market participants have evaluated the balance of risks and costs inherent in over-collateralization (as IA and IM both create) only about one-third have elected to bear the additional cost of segregation in preference to managing the additional risk of over-collateralization. This is interesting in the context of forthcoming margin regulation which may dramatically increase the amount of IA, and mandate the offering of segregation.

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<sup>4</sup> 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](http://www.isda.org).

<sup>5</sup> 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.

**Table 2.2: Treatment of Independent Amount***Percentage of total collateral amount*

	Independent Amount Received		Independent Amount Delivered	
	All	Large	All	Large
Commingled with variation margin	64.9%	64.0%	69.2%	63.9%
Segregated on books and records of dealer or affiliate	7.6%	7.9%	21.8%	27.8%
Segregated with custodian (excluding Tri-Party arrangements)	11.2%	10.8%	4.7%	3.7%
Segregated with Tri-party Arrangement	16.3%	17.2%	4.3%	4.5%

#### 2.4. COLLATERAL RE-USE

The practice of collateral re-use involves the re-pledging/re-delivery, sale, investment, or other contractually-permitted 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 importance in both the reduction of collateral funding costs and ensuring that the global supply of high quality collateral assets is not overwhelmed by demand, thus driving up prices for such assets.

**Table 2.3: Percentage of collateral re-used***Percentage posted in connection with OTC derivatives transactions that is **eligible to be re-used** under the terms of the collateral agreements*

	Large, Average	Medium, Average	Small, Average
Cash	92.7%	83.2%	66.5%
Securities	57.8%	75.7%	40.3%
Other	19.9%	16.9%	4.5%
<b>Total</b>	82.0%	77.9%	64.7%

*Percentage posted in connection with OTC derivatives transactions that is **actually re-used** under the terms of the collateral agreements*

	Large, Average	Medium, Average	Small, Average
Cash	88.5%	69.4%	42.4%
Securities	42.1%	38.3%	7.0%
Other	4.1%	8.0%	0.0%
<b>Total</b>	75.2%	62.2%	40.1%

In the 2013 Survey, there continues to be a significant proportion of cash being reused, particularly amongst large firms, with 88.5 percent of collateral posted being re-used (where 92.7 percent is eligible to be reused under the terms of the collateral arrangement).

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

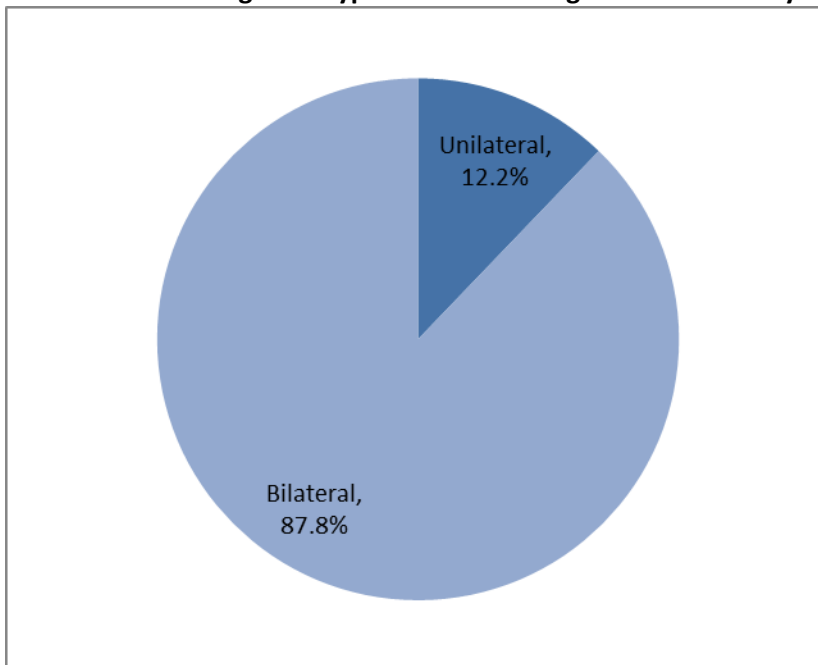
### 3. EXTENT OF COLLATERAL USE

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

Respondents to the 2013 Margin Survey report 118,853 active<sup>6</sup> collateral agreements in place for non-cleared OTC transactions, compared with 137,869 in the 2012 Survey, a 14 percent decrease. There are a number of factors contributing to this reduction. These include counterparty consolidation whereby legacy collateral agreements are discontinued over time due to mergers, 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), the more prolific negotiation of CSAs to cover multiple entities, and a transition toward cleared transactions. As per table 2.1, there has been an 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.

Charts 3.1 and 3.2 show the split between unilateral and bilateral agreements and between ISDA CSA<sup>7</sup> and non-ISDA CSA agreements. Respondents report that approximately 77 percent of their ISDA CSAs and 88 percent of all agreements are bilateral. As in previous years, ISDA CSA documentation is the most frequent choice among practitioners at about 87 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.

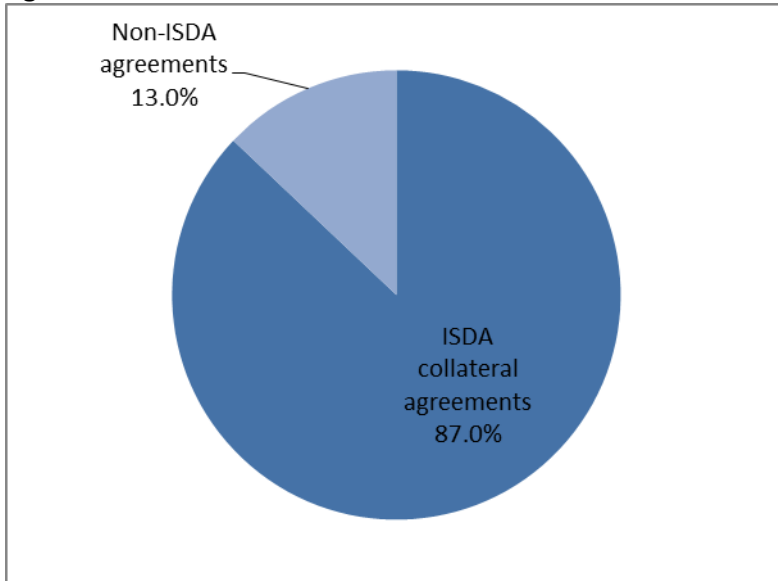
**Chart 3.1: Percentage and types of collateral agreements used by respondents: Bilateral vs. Unilateral**



<sup>6</sup> Active collateral agreements are those with outstanding exposure and / or collateral balances.

<sup>7</sup> 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.

**Chart 3.2: Percentage and types of collateral agreements used by respondents: ISDA vs. Non-ISDA Agreements**



### 3.2. COLLATERALIZATION LEVELS

To measure collateral coverage, the Survey asked respondents to report 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. Tables 3.1 and 3.2 indicate the numbers of collateral agreements by portfolio trade count and by type of counterparty, respectively. Table 3.1 illustrates that 87.4 percent of all collateral agreements are with counterparties whose portfolios of collateralized transactions include less than 100 OTC derivatives while 0.4 percent of all collateral agreements are with counterparties whose portfolios of collateralized transactions include more than 5,000 trades. Table 3.2 shows that mutual funds have the highest percentage (28.1 percent) of both bilateral and unilateral agreements across the various counterparty types while Special Purpose Vehicles (SPVs) have a total of 1.7 percent.

**Table 3.1: Percentage of collateral agreements by trade count in the portfolio**

Number of trades in the portfolio	Percentage
Greater than 5,000 trades	0.4%
Between 2,500 and 5,000 trades	4.3%
Between 500 and 2,499 trades	2.4%
Between 100 and 499 trades	5.6%
Less than 100 trades	87.4%
<b>Total</b>	<b>100.0%</b>

**Table 3.2: Percentage of collateral agreement by counterparty type**

<b>Counterparty Type</b>	<b>Unilateral Percentage</b>	<b>Bilateral Percentage</b>	<b>Total Percentage</b>
Banks/Broker-dealers	1.4%	21.3%	<b>22.7%</b>
Hedge funds	1.9%	14.7%	<b>16.7%</b>
Mutual funds	1.2%	26.9%	<b>28.1%</b>
Pension funds	0.1%	6.4%	<b>6.5%</b>
Insurance companies	0.2%	3.1%	<b>3.3%</b>
Energy/ Commodity firm	0.4%	1.7%	<b>2.1%</b>
Non-financial corporations	2.3%	4.9%	<b>7.2%</b>
Special purpose vehicles (SPV)	1.2%	0.5%	<b>1.7%</b>
Supranationals	0.1%	0.2%	<b>0.2%</b>
Government-sponsored entities/ Government Agencies	0.1%	0.9%	<b>1.0%</b>
Sovereign national governments	0.1%	0.2%	<b>0.3%</b>
Local or regional government entities	0.4%	0.7%	<b>1.1%</b>
Other	2.1%	7.2%	<b>9.2%</b>
<b>Total</b>	<b>11.5%</b>	<b>88.5%</b>	<b>100.0%</b>

Respondents were asked to indicate the number of collateralized agreements with live trades with regard to their total collateralized OTC derivatives trade population. An 'inactive agreement' is an executed agreement which has no current associated exposure and/or no collateral delivered or received as of December 31, 2012. The number of inactive agreements, which for this year's survey was approximately 232,684, includes counterparties that still exist but do not currently trade under the existing agreement. Some of the inactive agreements do not have any current activity as at the end of the year but may be used to trade at some point. Generally speaking, firms use this number to benchmark the total number of agreements they have executed and gauge scalability.

Table 3.3 shows the percent of all OTC derivatives trade volume (cleared and non-cleared) subject to credit support agreements by type of instrument. The results vary from a high of 83.0 percent of trade volume for credit derivatives to a low of 48.3 percent for commodities, including precious metals transactions for large firms. The relatively low rate of 52.0 percent for 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. Importantly, it should be noted that the nature of counterparty risk with short-dated FX trades is different to that generally associated with derivatives, being a settlement risk concern rather than an outright credit risk concern; accordingly the FX market has developed continuous-linked settlement methods of mitigating settlement risk, and these are widely used, highly effective, and not reported in this survey. Similarly, most users of commodity derivatives also tended to be non-financial companies, which are less likely to post collateral than financial firms<sup>8</sup>. It should be noted that the commodity derivatives market relies much more than other segments on letters of credit rather than financial collateral for counterparty risk protection, and these are not included in the reported numbers above. Thus, in interpreting this data, we note that not all OTC derivatives are alike, and sub-segments of the market

<sup>8</sup> See "2009 Derivatives Usage Survey", in *ISDA Research Notes* (2009), No.2

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.

Collateralization rates are uniformly higher among the large dealers than for the rest of the sample. Large dealers report that 80.7 percent of their overall trade volume is subject to collateral agreements with percentages ranging between 96.3 percent of their credit derivatives trades on the high end and 54.5 percent of commodity derivatives transactions on the low end (with the same caveat that letters of credit are excluded from this data, as was noted above).

**Table 3.3: Percentage of all trades subject to collateral agreements, by OTC derivatives product type**

	All, Average		Large, Average	
	2013	2012	2013	2012
Fixed Income Derivatives	79.2%	78.1%	89.4%	89.9%
Credit Derivatives	83.0%	93.4%	96.3%	96.1%
FX Derivatives	52.0%	55.6%	67.9%	70.6%
Equity Derivatives	72.5%	72.7%	78.2%	85.3%
Commodities, including precious metals	48.3%	56.3%	54.5%	63.9%
<b>All OTC Derivatives</b>	<b>73.7%</b>	<b>71.4%</b>	<b>80.7%</b>	<b>83.7%</b>

This chart indicates that the industry overall, both by trade count and exposure, continues to collateralize a significant, and year-on-year increasing, proportion of all OTC derivative transactions. This is an important determinant that indicates that the industry is following best practice on risk mitigation techniques and preemptively reducing counterparty credit risk in the advent of various non-cleared margining rules.

Table 3.4 indicates the percentage of non-cleared trades subject to collateral agreements by OTC derivatives product type. Overall 69.1 percent of non-cleared trades are collateralized. Large dealers report that 75.3 percent of their non-cleared trades are collateralized, including 94.5 percent of all their CDS trades.

**Table 3.4: Percentage of non-cleared trades subject to collateral agreements, by OTC derivatives product type**

	All Average	Large Average	Medium Average	Small Average
Fixed Income Derivatives	72.5%	74.9%	58.8%	85.7%
Credit Derivatives	79.4%	94.5%	69.8%	82.9%
FX Derivatives	51.6%	66.8%	38.9%	59.8%
Equity Derivatives	68.2%	76.2%	62.5%	70.3%
Commodities, including precious metals	51.5%	52.5%	38.4%	69.3%
<b>All OTC Derivatives</b>	<b>69.1%</b>	<b>75.3%</b>	<b>54.8%</b>	<b>78.1%</b>



## 4. MARKET PRACTICES

### 4.1 SWAP VALUATION FOR COLLATERALIZED TRANSACTIONS

The last two to three years have seen increasing market focus on the valuation of OTC derivatives in the context of the specific collateral agreements which cover them. This evolution stems from the observation that the future cashflows which are due to be made by the parties for a swap can be considered to be funded by the current collateral deliveries made between the parties. This evolution is not yet complete across the market.

For instance, consider a swap with several future cashflows in a specified currency which have a net present value of X when discounted at a rate of Y. If this swap is collateralized with cash collateral in the amount of X which accrues interest at an interest rate equal to Y, over time the interest generated plus the cash collateral will provide exactly the right amount, in the correct currency, to settle all of the future swap cashflows as they come due.

In light of the fact that for most CSAs the interest rate on cash collateral is OIS for the applicable currency, many market participants have been moving towards valuation of their swap cashflows at OIS (rather than the historical use of LIBOR), because this achieves better funding alignment towards the scenario described above, and less liquidity risk as a result. This implementation of the most relevant valuation (MRV) basis, and in particular the numerical difference between historical LIBOR valuation and the new funding-sensitive valuation, is sometimes referred to as FVA or “Funding Valuation Adjustment”.

However, it should be noted that while OIS may be the MRV basis for swaps collateralized with cash accruing interest at OIS, that benchmark becomes less relevant as the collateral delivered diverges further away from cash - swaps under CSAs containing corporate bonds or equities (for instance) should be appropriately valued at some other rate that better reflects where they will be funded in the market in practice. Full analysis of the MRV basis should also consider whether collateral may be rehypothecated, or not.

A second secular market trend is the recognition (and valuation) of the embedded optionality within the economic terms of the CSA. Wherever a party has the option to deliver any asset from a list of eligible collateral, with the right to substitute, that party has a valuable “collateral switch option”. In some agreements (mostly based on the English Law CSA), a secured party who is being offered new collateral in substitution for old collateral also may have the option to decline to permit the substitution; this is in effect a counter-option to the optionality of the collateral poster.

In response to these emerging developments, a series of new questions were included on a trial basis within the 2013 survey, intended to provide new clarity on market practice around valuation of swap portfolios in the context of the relevant collateral agreements. From the full roster of 78 survey respondents, as many as 65 provided answers in this section which is a very encouraging response rate.

In table 4.1 we set out data that describes the current state of *thinking* about MRV basis. In table 4.2 we examine the current state of *implementation* on this topic, and discover that there remains a considerable body of development work still to be performed across the industry to complete the build out; this comes as no surprise and reflects the evolving state of market practice in this space.

Table 4.1 shows that for “clean” CSAs (where eligible collateral is cash only in a single currency or in multiple currencies that are aligned to the underlying swap cashflows, such as a single-currency CSA, a siloed CSA, or a Standard CSA) over 80% of market participants responding would *theoretically* value swaps at OIS where rehypothecation is permitted. This demonstrates the degree to which there is strong market consensus on OIS valuation for this special case set of circumstances, which has been built up over the past two to three years. It is notable that “clean” CSAs of the types mentioned above generate swap valuations that approach the clearing house valuation of similar products, and in fact the Standard CSA produces valuations that are exactly equivalent to LCH swap valuation; this convergence in valuation approach across cleared and non-cleared segments of the market is not coincidental.

In terms of the historically most common valuation basis of LIBOR, only 5-10% of firms would theoretically still use this basis in all of the scenarios captured by the survey.

For other collateralization scenarios, the consensus is less strong. For instance, in situations where collateral is not rehypothecable, a fairly consistent response rate of about 15-17% suggest that they would theoretically value swaps based on their own cost of funds, which would align the discount rate to the rate at which the future cashflows will be funded *but only* where collateral is received; a further 16-20% would theoretically use the more nuanced approach of discounting at OIS for payables and cost of funds for receivables. Thus, around 31-37% of firms would theoretically use a funding sensitive discount rate for CSAs containing non-rehypothecable collateral, whereas by contrast between 32% and 50% of firms would theoretically discount at OIS in this situation.

In non-clean CSA scenarios where rehypothecation is permitted, but the eligible collateral is not currency-aligned or includes securities, we see other contrasts. Some 25-35% of firms would theoretically use a discount curve constructed from the cheapest-to-deliver collateral currency at each point, option adjusted, which is a sophisticated treatment of a highly complex collateralization scenario. However, 36-50% would theoretically simply discount at OIS regardless of what collateral may be delivered by their counterparty, indicating that there is still substantial work to be done across the market to achieve consistent valuation of complex CSA structures, or to replace these CSAs with “clean” structures such as the Standard CSA that would produce straightforward OIS valuations.

For CSAs containing securities as collateral (whether government bonds, agencies or corporate bonds), around 22-23% of firms would theoretically discount based on either OIS or LIBOR plus the repo funding spread for the instrument. In practice these instruments fund at a wide range of spreads in repo markets, but with a markedly different (lower) risk profile than the same securities posted under CSAs, where (unlike a repo) the posting may be at any future point in time, and for unlimited amount and unlimited duration, and with no ability for the receiving party to decline or break the posting.

While it must be remembered that table 4.1 contains the theoretical responses of firms, it is perhaps useful as a gauge of the direction of swap valuation under different CSA conditions in the future.

**Table 4.1: Valuation of derivatives subject to collateral agreements**

*Percentage of respondents that indicate the corresponding benchmark to be conceptually the most relevant valuation basis for each scenario*

Scenario		Most Relevant Valuation and Discounting Basis						
Type of CSA	Rehypothecation Status	Firm's own cost of funds	Asymmetric – OIS on payable, firm's cost of funds on receivable	Discount curve constructed from cheapest-to-deliver collateral currency at each point, option adjusted.	LIBOR	LIBOR + repo funding spread	OIS	OIS + repo funding spread
Cash Only CSA – Single Currency or Multiple Aligned Currencies (e.g. single-currency CSA, siloed CSA, Standard CSA or LCH-style CSA) with interest at the relevant OIS rate	Permitted	6.6%	3.3%	4.9%	4.9%	N/A	80.3%	N/A
	Not permitted or operationally impractical	17.2%	19.0%	5.2%	8.6%	N/A	50.0%	N/A
Cash Only CSA – Multiple Currencies Non-Aligned (e.g. traditional CSA with multiple currencies of eligible cash collateral but no securities eligible as collateral) with interest on cash at the relevant OIS rate	Permitted	5.1%	0.0%	35.6%	8.5%	N/A	50.8%	N/A
	Not permitted or operationally impractical	16.4%	16.4%	12.7%	10.9%	N/A	43.6%	N/A
CSA including cash (OIS interest rate) and government bonds	Permitted	3.4%	1.7%	25.9%	8.6%	1.7%	37.9%	20.7%
	Not permitted or operationally impractical	14.0%	19.3%	8.8%	10.5%	3.5%	36.8%	7.0%
CSA including cash (OIS interest rate) and agency bonds	Permitted	7.3%	1.8%	27.3%	5.5%	1.8%	36.4%	20.0%
	Not permitted or operationally impractical	16.7%	20.4%	9.3%	9.3%	1.9%	33.3%	9.3%
CSA including cash (OIS interest rate) and investment grade corporate bonds	Permitted	5.5%	3.6%	27.3%	5.5%	3.6%	36.4%	18.2%
	Not permitted or operationally impractical	15.1%	20.8%	9.4%	9.4%	1.9%	32.1%	11.3%

Table 4.2, however, measures the actual *current* state of practical implementation of swap valuation methodologies, for the purpose of margining under collateral agreements (as distinct from discounting methodologies used for valuation statements or other informational purposes).

As expected, the migration from LIBOR to other methodologies is much slower in practice than the theoretical responses in table 4.1 suggest the future may hold. This is because the technical challenges of implementation of new valuation methodologies are formidable, and in an era when regulatory reform implementations consume much of the available bandwidth for change within firms, the development of more sophisticated valuation technology simply takes time.

The survey shows that LIBOR valuation is still the prevalent practice for Credit, Equities, Mortgages and Commodities in all regions, ranging from around 55% to 76%, although OIS and CSA-specific discounting methods have made substantial inroads in these products. In Rates and FX, which were earlier adopters of non-LIBOR valuation methods, the use of LIBOR is less; for FX the level lies around 50% with some regional differences either side of that level, and for Rates we see LIBOR used in only around a quarter to a third of cases.

Where LIBOR is not used, some firms have simply moved to OIS, whereas others have implemented a more sophisticated CSA-specific discounting methodology, which will typically factor funding sensitivity into swap valuation. This represents the current state of the art, and as table 4.1 demonstrates market participants have a clear direction of travel that suggests this trend will extend in the future.

**Table 4.2: CSA discounting methodology, by products and geography**

*Percentage of respondents that have implemented the respective discounting methodology*

Product	Americas			Europe			Asia		
	LIBOR	OIS	CSA-Specific	LIBOR	OIS	CSA-Specific	LIBOR	OIS	CSA-Specific
Rates	30.2%	38.1%	31.7%	27.0%	42.9%	30.2%	35.7%	30.4%	33.9%
FX	48.3%	31.7%	20.0%	46.7%	35.0%	18.3%	54.7%	24.5%	20.8%
Credit	57.9%	21.1%	21.1%	55.2%	25.9%	19.0%	60.4%	18.9%	20.8%
Equities	65.5%	16.4%	18.2%	63.0%	20.4%	16.7%	69.4%	12.2%	18.4%
Mortgages	67.4%	16.3%	16.3%	65.1%	20.9%	14.0%	72.5%	12.5%	15.0%
Commodities	70.8%	14.6%	14.6%	69.4%	18.4%	12.2%	76.1%	10.9%	13.0%
Other	69.2%	15.4%	15.4%	69.2%	17.9%	12.8%	75.7%	10.8%	13.5%

Finally, this year's survey requested additional information regarding the use of thresholds that are dependent on credit rating. Thresholds set at a portfolio level induce non-linear effects on trade valuation, because they reduce the amount of collateral collected as compared to the amount required to fund future swap cash flows, but also they do so in a discontinuous way in respect of any particular transaction. For instance, all trades executed while the threshold has not been reached will actually be uncollateralized, but when the threshold is exceeded and collateral has been posted at a portfolio level they will be partially collateralized; this discontinuity in collateralization causes a path-dependent change in funding, which in turn induces a change in swap valuation. The larger the threshold, the greater the non-linear effect. Thresholds which are additionally dependent on credit rating introduce an additional complexity of valuation, which is hard to model due to multi-factorial path-dependencies. Survey respondents indicate that over 90% of firms have some existing CSAs which contain rating

dependent thresholds, but interestingly only around 50% are currently writing new CSAs with these features. Some 45% of respondents are actively renegotiating CSAs to reduce or eliminate CSAs with rating dependent thresholds.

## 4.2 OPTIMIZATION

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

In this year's Survey, a new set of questions was posed to understand to what extent firms are optimizing collateral use. Table 4.4 shows where the collateral optimization function sits within their organization. Significantly, the development of collateral optimization functions has occurred at all scales of market participant, with around half of small and medium firms having such capabilities and now 100% of large firms attempting to post optimally.

**Table 4.3: Optimization**

	All	Large	Medium	Small
Percentage of respondents that optimize collateral posted	59.2%	100.0%	54.5%	44.8%
Percentage of respondents that systematically decide the type of collateral to pledge when optimizing	52.1%	71.4%	50.0%	44.4%

In 80% of the largest firms, collateral optimization is part of a daily process, and in the remainder it is performed only when collateral movements and potential benefits from optimization are material. In the smaller and medium sized portfolios, we see daily optimization in about a quarter of cases, and a materiality-based approach for the other 75%.

It is interesting to note that firms appear to be converging on the conclusion that collateral optimization is best-aligned as a front office activity, although in a significant minority of cases the function is performed in operations departments. Anecdotally it seems that the more a firm's optimization methodology is based on liquidity risk, funding costs, capital costs and other economic factors, the stronger the affinity with trading desk activities where the revenue benefits of optimization can be recognized. By contrast, optimization approaches based on more rules-based methods may be implemented in operations departments.

**Table 4.4: Percentage of respondents proactively optimizing collateral delivered, by function within firms**

	All	Large	Medium	Small
Front Office	49.3%	71.4%	43.8%	44.8%
Operations	20.0%	21.4%	21.9%	17.2%
Credit	6.7%	0.0%	9.4%	6.9%
Corporate Treasury	10.7%	0.0%	9.4%	17.2%
Other	13.3%	7.1%	15.6%	13.8%

Respondents were asked to report the daily USD equivalent of collateral paid and received and the average daily number of incoming and outgoing margin calls for the period January 1 to December 31, 2012.

**Table 4.5: Collateral Margin Calls & Movements**

Note: Average – Average amount of collateral/number of margin calls per respondent

Total – Total amount of collateral/number of margin calls for the corresponding size group

<i>In USD millions</i>	All		Large	Medium		Small		
	Total	Avg.	Range	Total	Avg.	Total	Avg.	
Average daily equivalent of collateral paid	42,385	2,399	745 - 4,976	33,593	230	7,605	47	1,187
Average daily equivalent of collateral received	39,769	2,266	750 - 3,931	31,719	216	6,897	46	1,153
Average daily number of incoming margin calls	8,834	507	217 - 784	7,095	42	1,401	13	338
Average daily number of outgoing margin calls	9,840	584	153 - 877	8,169	41	1,356	12	314

As table 4.5 illustrates the ratio of the average of large firm margin call and movement activity far exceeds the averages for both medium and small firms. Large firms are responsible for more than 90 percent of the margin call activity and as such, continue to take the initiative to further standardize and automate the margin call process.

## 5. ELECTRONIC MESSAGING

The increase in collateral volumes driven by the regulatory requirements of Dodd-Frank and EMIR is expected to necessitate a migration towards electronic messaging away from the manually intensive and existing operating model organizations currently have in place. Firms throughout the industry are now even more aware of the need to automate the derivatives collateral management operational processes to ensure volumes can be absorbed as a result of the trifurcation of the operational process i) cleared, ii) legacy and iii) new bilateral collateral arrangements for margining.

**Table 5.1: Electronic messaging platform**

	All	Large	Medium	Small
Percentage of respondents that are current subscribers to an electronic messaging platform for OTC derivatives margining	19.2%	85.7%	6.1%	3.2%
Percentage of respondents that are not current subscribers but have planned on transitioning to an electronic messaging platform in 2013	26.1%	14.3%	36.4%	20.0%

**Table 5.2: Number of active CSAs live on electronic messaging platforms**

Note: Average - Average number of active CSAs per respondent

Total - Total number of active CSAs for the corresponding size group

	All	
	Average	Total
Number of active CSAs	225	3381

**Table 5.3: Percentage of monthly margin call volume handled via electronic messaging platforms**

Note: Percentage includes both inbound and outbound margin calls

	All
Percentage of current monthly margin call volume	9.5%
Percentage of monthly margin call expected in 2013	32.4%

**Table 5.4: Monthly margin call volume for the full month of December 2012**

Note: Average – Average number of margin calls per respondent

Total – Total number of margin calls for all respondents

	Electronic		Non-Electronic		Subtotal
	Average	Total	Average	Total	
Outbound margin call	771	11,571	7,940	119,100	130,671
Inbound margin call	697	10,462	6,792	101,884	112,346
<b>Total margin calls</b>	N/A	22,033	N/A	220,984	243,017

As the above tables illustrate, with more than 85 percent of large firms but only 6.1 percent and 3.2 percent of medium and small firms, respectively, subscribing to an electronic messaging platform for OTC derivatives margining, increased end-user engagement is required in order to improve and further automate the margin call process.

## 6. PORTFOLIO RECONCILIATION

As in past years, the 2013 Survey asked respondents whether they reconcile their portfolios and how often reconciliation is performed. As indicated earlier, there are various proposed and final regulations implementing the Dodd-Frank Act and EMIR in regard to collateral management. This year 100 percent of the large dealer firms indicated that they performed some form of pro-active portfolio reconciliation, of which nearly 75 percent reconcile daily. The industry continues to embrace efficient means of performing portfolio reconciliation and automation is key to achieving industry best practice on dispute resolution.

For all firms in 2013, the survey evidences a clear effort to increase the frequency of portfolio reconciliation. There has been a modest increase in the percentage of portfolios reconciled daily, rising from 47.5 percent to 48.4 percent for all firms, and from 71 percent to 74 percent for the large firms. Regulatory requirements will accelerate that trend. Building on the work done prior to the new regulations, the industry is now well-positioned to meet the new regulatory standards.

In addition, there is a noticeable decline in the percentage of trades not regularly reconciled, down to 20 percent from 28 percent for all firms.

These results are a direct reflection of the regulatory commitments and a proactive approach to reconciliation requirements in upcoming regulation by the signatories of the periodic letters to the Federal Reserve Bank of New York and other supervisors in the OTC Derivative Supervisors Group 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).<sup>9</sup>

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. Risk-based reconciliation happens in cases of disputes or for any other reason during certain intervals. Daily reconciliation happens on a daily basis. Scheduled reconciliations happen on a weekly, monthly, quarterly and annual basis. Market respondents over the last few years have adopted a sophisticated portfolio reconciliation regime where portfolios are reconciled when the need dictates, done on a frequent basis and scheduled at various intervals. Table 6.1 below displays a summary of their responses to this question.

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<sup>9</sup> Further information about the regulatory commitment process and the OTC Derivatives Supervisors Group is available at [http://www.newyorkfed.org/markets/otc\\_derivatives\\_supervisors\\_group.html](http://www.newyorkfed.org/markets/otc_derivatives_supervisors_group.html).



**Table 6.1: Reconciliation frequency of collateralized OTC derivatives trade by percentage of OTC trade volume**

Frequency	All		Large	
	2013	2012	2013	2012
Risk-based Reconciliation	19.8%	27.9%	19.4%	20.0%
Daily	48.4%	47.5%	73.9%	70.8%
<b>Scheduled</b>				
Weekly	13.6%	6.9%	1.7%	2.1%
Monthly	11.2%	10.7%	4.1%	5.0%
Quarterly	5.9%	5.9%	0.6%	1.2%
Annually	1.0%	1.1%	0.3%	0.9%
<b>Total</b>	100.0%	100.0%	100.0%	100.0%

**Table 6.2: Reconciliation frequency of collateral agreements with live trades**

*Number of collateralized agreements with the corresponding number of live trades*

	Daily	Weekly	Monthly	Quarterly	Annually	Risk-based Reconciled	Sub total
Greater than 5,000 Trades	0.37%	0.01%	0.01%	0.00%	0.00%	0.02%	0.42%
Between 2,500 and 5,000 Trades	0.35%	0.12%	0.02%	0.00%	0.00%	0.09%	0.59%
Between 500 and 2,499 Trades	1.28%	0.23%	0.29%	0.07%	0.00%	0.38%	2.25%
Between 100 and 499 Trades	2.22%	0.28%	0.47%	0.38%	0.05%	2.14%	5.54%
Less than 100 Trades	22.82%	1.26%	1.54%	1.58%	0.83%	63.17%	91.20%
<b>Total</b>	27.05%	1.91%	2.33%	2.03%	0.89%	65.80%	100%

**Table 6.3: Reconciliation frequency of active triparty population by percentage of collateral balance held in triparty accounts**

Frequency	All	Large	Medium	Small
Risk-based Reconciliation	18.5%	14.4%	23.4%	16.7%
Daily	51.7%	62.3%	42.1%	52.2%
<b>Scheduled</b>				
Weekly	15.1%	8.4%	9.2%	30.8%
Monthly	12.5%	8.3%	25.3%	0.3%
Quarterly	2.2%	6.7%	0.0%	0.0%
Annually	0.0%	0.0%	0.0%	0.0%
<b>Total</b>	100.0%	100.0%	100.0%	100.0%

## 7. CLEARING

This year, the Survey asked respondents to report further information in relation to central clearing. The role of central counterparties (“CCPs”) in clearing trades and in managing collateral is of growing importance and, as new regulation is implemented, future surveys will report key statistics on the proportion of collateral pledged for cleared swaps, the level of firms engaged in margining of cleared OTC transactions and the number of clearing agreements in place.

Firms were asked to detail their readiness to comply with the clearing mandates under Dodd-Frank and EMIR. All respondents from large firms stated that they would be 100 percent ready to comply with both Dodd-Frank and EMIR clearing mandates, falling to around 70 percent readiness for small firms.

Firms were also asked if they anticipated using multiple CCPs or just a single CCP. Approximately 88 percent of firms indicated that they expect to deal through multiple CCPs. Only 12 percent of firms indicated that they anticipated using a single CCP, probably because these are more domestically focused firms.

The 2013 survey asked dealer respondents to report information regarding the initial and variation margin levels they had as both where they were directly executing a trade and where they were acting as a derivatives clearing member for a customer. When directly executing a trade, firms execute and clear OTC derivatives on their own behalf and have membership in a clearing house (otherwise known as house clearing). When executing a trade as a 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).

**Table 7.1a: Collateral Outstanding with a Central Counterparty**  
**Collateral outstanding with a central counterparty: dealers executing directly (house clearing)**  
*USD millions*

	Collateral Received			Collateral Delivered		
	Cash	Securities	Subtotal	Cash	Securities	Subtotal
<b>CFTC Compliant DCOs</b>						
Initial Margin	N/A	N/A	<b>N/A</b>	20,405	10,101	<b>30,506</b>
Variation Margin	32,728	3,504	<b>36,232</b>	39,187	1,426	<b>40,613</b>
<b>Other DCOs</b>						
Initial Margin	N/A	N/A	<b>N/A</b>	1,497	4,847	<b>6,344</b>
Variation Margin	31,123	0	<b>31,123</b>	8,135	0	<b>8,135</b>
<b>Totals</b>						
Initial Margin	N/A	N/A	<b>N/A</b>	21,902	14,948	<b>36,850</b>
Variation Margin	63,851	3,504	<b>67,355</b>	47,322	1,426	<b>48,748</b>
<b>Total</b>			<b>67,355</b>			<b>85,598</b>

**Table 7.1b: Collateral Outstanding with a Central Counterparty**

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

USD millions

	Collateral Received			Collateral Delivered		
	Cash	Securities	Subtotal	Cash	Securities	Subtotal
<b>CFTC Compliant DCOs</b>						
Initial Margin	1,456	3,004	<b>4,460</b>	538	1,851	<b>2,389</b>
Variation Margin	3,228	0	<b>3,228</b>	1,409	0	<b>1,409</b>
<b>Other DCOs</b>						
Initial Margin	99	282	<b>381</b>	154	33	<b>187</b>
Variation Margin	328	0	<b>328</b>	338	0	<b>338</b>
<b>Totals</b>						
Initial Margin	1,555	3,286	<b>4,841</b>	692	1,884	<b>2,576</b>
Variation Margin	3,556	0	<b>3,556</b>	1,747	0	<b>1,747</b>
<b>Total</b>			<b>8,397</b>			<b>4,323</b>

As Table 7.2, below, illustrates the predominant collateral asset in circulation is USD at 39.08 percent of collateral received and 36.75 percent of collateral delivered followed closely by EUR for house trades. For both Collateral Received and Collateral Delivered, cash is the most prevalent type of collateral used which is also inline with non-cleared trades. This could be a reflection of the trend towards the use of “clean” CSAs where cash is the only eligible form of collateral. Only 20 percent of Collateral Delivered is comprised of Government Securities, with the majority being used for Initial Margin.

**Table 7.2: Value of collateral received and delivered by respondents against centrally cleared OTC transactions (house trades)**

USD millions

Type of Collateral	Collateral Received to meet		Collateral Delivered to meet		
	Initial Margin <sup>10</sup>	Variation Margin	Initial Margin	Variation Margin	
Cash	USD	N/A	39.08%	11.50%	25.25%
	EUR	N/A	42.59%	7.12%	17.76%
	GBP	N/A	8.30%	0.35%	5.46%
	JPY	N/A	3.24%	0.31%	5.06%
	Other	N/A	6.77%	0.02%	6.12%
	<b>Subtotal</b>	<b>N/A</b>	<b>99.98%</b>	<b>19.30%</b>	<b>59.66%</b>
Government Securities	United States	N/A	0.00%	8.65%	1.05%
	European Union	N/A	0.02%	6.02%	0.14%
	United Kingdom	N/A	0.00%	1.44%	0.00%
	Japan	N/A	0.00%	1.90%	0.00%
	Other	N/A	0.00%	0.38%	0.00%
	<b>Subtotal</b>	<b>N/A</b>	<b>0.02%</b>	<b>18.39%</b>	<b>1.18%</b>
Others	Government agency securities / GSEs	N/A	0.00%	0.00%	0.00%
	Supranational Bonds	N/A	0.00%	0.00%	0.00%
	US Municipal Bonds	N/A	0.00%	0.00%	0.00%
	Covered Bonds	N/A	0.00%	1.13%	0.00%
	Corporate Bonds	N/A	0.00%	0.00%	0.31%
	Letters of Credit	N/A	0.00%	0.00%	0.00%
	Equities	N/A	0.00%	0.00%	0.00%
	Metals and Other Commodities	N/A	0.00%	0.00%	0.00%
	Other	N/A	0.00%	0.03%	0.00%
<b>Subtotal</b>	<b>N/A</b>	<b>0.00%</b>	<b>1.16%</b>	<b>0.31%</b>	
<b>Total Collateral</b>	<b>N/A</b>	<b>100.00%</b>	<b>38.85%</b>	<b>61.15%</b>	

In Table 7.3, below, the predominant collateral asset in circulation is USD at 55.47 percent of Collateral Received and 44.45 percent of Collateral Delivered. EUR only accounts for 5.23 percent of Collateral Received and 36.91 percent of Collateral Delivered.

<sup>10</sup> This column indicates "N/A" because CCPs do not post initial margin to their members on house trades submitted to the CCPs for clearing.

**Table 7.3: Value of collateral received and delivered by respondents against centrally cleared OTC transactions (client cleared and only collateral to/from clients)**

USD millions

Type of Collateral	Collateral Received to meet		Collateral Delivered to meet		
	Initial Margin	Variation Margin	Initial Margin <sup>11</sup>	Variation Margin	
Cash	USD	15.21%	40.26%	N/A	44.45%
	EUR	2.45%	2.78%	N/A	36.91%
	GBP	0.64%	0.84%	N/A	10.18%
	JPY	0.14%	0.31%	N/A	1.85%
	Other	0.01%	1.03%	N/A	6.61%
	<b>Subtotal</b>	<b>18.44%</b>	<b>45.23%</b>	<b>N/A</b>	<b>100.00%</b>
Government Securities	United States	31.65%	0.00%	N/A	0.00%
	European Union	3.30%	0.00%	N/A	0.00%
	United Kingdom	0.11%	0.00%	N/A	0.00%
	Japan	0.00%	0.00%	N/A	0.00%
	Other	1.08%	0.00%	N/A	0.00%
	<b>Subtotal</b>	<b>36.14%</b>	<b>0.00%</b>	<b>N/A</b>	<b>0.00%</b>
Others	Government agency securities / GSEs	0.18%	0.00%	N/A	0.00%
	Supranational Bonds	0.00%	0.00%	N/A	0.00%
	US Municipal Bonds	0.00%	0.00%	N/A	0.00%
	Covered Bonds	0.00%	0.00%	N/A	0.00%
	Corporate Bonds	0.00%	0.00%	N/A	0.00%
	Letters of Credit	0.00%	0.00%	N/A	0.00%
	Equities	0.00%	0.00%	N/A	0.00%
	Metals and Other	0.00%	0.00%	N/A	0.00%
	Commodities	0.00%	0.00%	N/A	0.00%
	Other	0.01%	0.00%	N/A	0.00%
<b>Subtotal</b>	<b>0.18%</b>	<b>0.00%</b>	<b>N/A</b>	<b>0.00%</b>	
<b>Total Collateral</b>	<b>54.77%</b>	<b>45.23%</b>	<b>N/A</b>	<b>100.00%</b>	

<sup>11</sup> As with house trades, CCPs do not post initial margin on trades submitted to the CCP; thus, this column indicates "N/A".

**Appendix 1.**  
**Firms responding to the 2013 ISDA Margin Survey**

Al Khaliji Commercial Bank	Lloyds Banking Group
Ally Financial Inc.	Maple Bank GmbH
ANZ	Mitsubishi UFJ Trust and Banking Corporation
Babson Capital Management	Mizuho Capital Markets Corporations
Banco BPI SA	Mizuho Corporate Bank, Ltd.
Banco Santander S.A.	Morgan Stanley
Bank of America Merrill Lynch	National Bank of Canada
Bank of Montreal	National Bank of Greece SA
Bank of New York Mellon Global Markets	Nationwide Building Society
Barclays	New York Life
Bayerische Landesbank	Nomura
Belfius Bank	Nordea Bank AB (publ)
BNP Paribas	Oversea-Chinese Banking Corporation Limited
Cecabank	PIMCO
Cheyne Capital Management (UK) LLP	Prudential Global Funding LLC.
Citadel Investment Group LLC	Quebec
Citigroup	Rabobank International
Commerzbank AG	Raiffeisen Bank International AG
Commonwealth Bank of Australia	Royal Bank of Canada
Crédit Agricole Corporate and Investment Bank	RWE Supply & Trading GmbH
Credit Suisse	SEB AB
DBS Bank Ltd	Shinsei Bank, Limited
Depfa Bank plc	Societe Generale
Deutsche Bank	Standard Chartered Bank
DNB Bank ASA	Sumitomo Mitsui Banking Corporation
Eurobank Ergasias SA	Sumitomo Mitsui Trust Bank, Limited
European Bank for Reconstruction and Development	SunTrust Bank
Federal Home Loan Mortgage Corporation (Freddie Mac)	Swedbank AB
Goldman Sachs	The Bank of Tokyo-Mitsubishi UFJ, Ltd.
HSBC	The Master Trust Bank of Japan, Ltd.
Hypo Vereinsbank - Member of UniCredit Group, UniCredit Bank AG	The Royal Bank of Scotland
ING Bank N.V.	The Toronto Dominion Bank
Investec Bank Limited	UBS
Jefferies and Company	VTB Capital plc
JP Morgan Asset Management	Wellington Management Company, LLP
JP Morgan Chase	Wells Fargo
KBC Bank NV	Westpac Banking Corporation
KeyBank National Association	WGZ Bank
KfW Bankengruppe	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 \$3.7 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.