ISDA Research Study

ISDA MARGIN SURVEY 2017

September 2017

Continued growth in cleared derivatives and the implementation of new margining rules for non-cleared derivatives from September 2016 have resulted in significant changes in collateral practices. These changes are another important step forward in financial regulatory reform efforts.

To assess their impact, ISDA has relaunched its annual Margin Survey. The survey analyzes the amount and type of initial margin (IM) and variation margin (VM) posted for non-cleared and cleared derivatives transactions.

The survey finds that approximately $1.41 trillion of collateral has been posted by market participants with central counterparties (CCPs) for their cleared derivatives transactions and with the 20 largest market participants for their non-cleared derivatives trades.

Of this amount, IM and VM posted for cleared derivatives totals $434 billion, and for non-cleared derivatives totals $977.5 billion.

Broken out by initial and variation margin, IM posted totals $280.5 billion, with $173.4 billion for cleared and $107.1 billion for non-cleared. Variation margin posted totals $1.13 trillion, with $260.8 billion for cleared and $870.4 billion for non-cleared.

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SUMMARY

Increased clearing and margining rules for non-cleared derivatives are changing the collateral landscape

- The significant increase in cleared derivatives activity over the past several years, coupled with the implementation of new margin requirements for non-cleared derivatives, is transforming the collateral landscape[1].

- To understand these changes, ISDA has relaunched its annual Margin Survey to assess the amount and type of IM and VM[2] posted for non-cleared and cleared derivatives transactions.

- For non-cleared derivatives, this survey covers 20 firms with the largest derivatives notional amounts outstanding (so-called 'phase-one' firms under the new margin rules)[3] on the amount and type of IM and VM exchanged for such transactions. This includes IM that is required to be exchanged under the new rules (regulatory IM) and IM that is exchanged as a result of bilateral negotiations and not regulation (discretionary IM).

- Based on the survey results, we estimate that the phase-one firms delivered $63.6 billion of IM in total and received $107.1 billion of IM for their non-cleared derivatives transactions. We estimate that VM delivered by phase-one firms totaled $685 billion and VM received by phase-one entities totaled $870.4 billion as of March 31, 2017.

  Regulatory IM: Phase-one firms delivered an estimated $47.2 billion of regulatory IM and received $46.6 billion of regulatory IM as of March 31, 2017 for their non-cleared derivatives exposures. Given that only phase-one firms were required to deliver or receive IM for non-cleared derivatives at that time, the fact these regulatory IM amounts are very similar is to be expected.

  Discretionary IM: Phase-one firms also delivered an estimated $16.3 billion of discretionary IM for non-cleared derivatives transactions and received $60.5 billion of discretionary IM as of March 31, 2017. The difference in discretionary IM delivered/received is likely due to the fact that phase-one firms are more likely to have one-way collateral agreements in place that only require their non-phase-one counterparties to post IM.

- For cleared derivatives, the survey aggregates and analyzes the amount of IM and VM posted at major CCPs by all clearing participants, including both clearing members and their clients.

- The amount of IM delivered to CCPs for cleared derivatives totaled $173.4 billion as of March 31, 2017. We estimate VM paid to CCPs by clearing members for credit default swaps (CDS) (including indices and single-name CDS) and interest rate swaps (IRS) at the end of the first quarter of 2017 was about $260.8 billion.

[1] Please see page 12 for a brief summary of the new margin regulations

[2] IM is the collateral that has to be posted to a counterparty at the beginning of a trade, reflecting the position's market risk during a close-out period. If IM is calculated on a portfolio basis, then it will be posted to reflect the impact of the trade on the market risk of the portfolio during a close-out period. IM may also be adjusted from time to time during the life of the contract to reflect changes in the potential future exposure of the trade or other factors. VM is the collateral exchanged during the life of the contract, reflecting daily changes in the market value of the trade

[3] Phase-one firms are the first group of firms for which two-way IM payments were mandated. There are 20 such firms

METHODOLOGY AND PARTICIPANTS

This year's survey assesses collateral posted for both cleared and non-cleared derivatives transactions

- Recent regulation in many jurisdictions requires or will require firms over certain thresholds to post and collect IM and to exchange VM.
- Margining practices prior to these regulations varied among derivatives users, with many adhering to ISDA collateral best practices. The exchange of VM for derivatives transactions was common, and some firms also posted IM under bilaterally negotiated collateral arrangements.
- This year, ISDA's Margin Survey examines the impact of the changes in regulation to assess the amount and type of collateral that is being posted for non-cleared and cleared derivatives transactions.
- For non-cleared derivatives, we surveyed 20 firms with the largest derivatives exposures. These firms were subject to the first phase of the new margining regulations for non-cleared derivatives in the US, Canada and Japan from September 2016 and in Europe from February 2017 (known as 'phase-one' firms).
- Of the 20 phase-one firms, 18 responded. To construct an estimate for the entire group, we used the average of the IM and VM of the five largest survey participants to estimate the missing data for one of the larger phase-one firms, and the average of the sixth to tenth largest firms to estimate the missing data for the other phase-one entity. These estimates were based on the disclosed amounts of over-the-counter (OTC) derivatives notionals of the firms.
- While we used this methodology to estimate the overall amounts of IM received and delivered by phase-one firms for their non-cleared derivatives, we used only the amounts actually reported by the 18 firms that participated in the survey for the more detailed analysis on the concentration and composition of margin.
- For cleared derivatives, the survey uses publicly available margin data from two US CCPs (CME Inc. and ICE Clear Credit), three European CCPs (Eurex Clearing, ICE Clear Europe, and LCH Group (including LCH Ltd and LCH SA)) and two Asian CCPs (Japan Securities Clearing Corporation (JSCC) and OTC Clearing Hong Kong Limited (OTC Clear)). The collected data only reflects margin for IRS and CDS. This data is published by CCPs under public quantitative disclosure standards set out by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO).

IM AND VM FOR NON-CLEARED DERIVATIVES

The estimated amount of collateral received by phase-one firms was $977.5 billion, while the estimated amount delivered was $748.6 billion on March 31, 2017

We define the amount of collateral received as the collateral balances that have been received by two counterparties on a portfolio of non-cleared derivatives contracts, including collateral for regulatory IM, discretionary IM and VM. We define the amount of collateral delivered as the collateral balances that have been delivered by two counterparties on a portfolio of non-cleared derivatives contracts, including collateral for regulatory IM, discretionary IM and VM. The estimated amount of collateral received by 20 phase-one firms for their non-cleared derivatives portfolios was $977.5 billion, and the estimated amount of collateral delivered by phase-one entities totaled $748.6 billion as of March 31, 2017[4].

Estimated Regulatory Initial Margin Received	46.6
Estimated Regulatory Initial Margin Delivered	47.2
Estimated Discretionary Initial Margin Received	60.5
Estimated Discretionary Initial Margin Delivered	16.3
Estimated Variation Margin Received	870.4
Estimated Variation Margin Delivered	685.0
Total Collateral Received	**977.5**
Total Collateral Delivered	**748.6**

In US$ billions

We estimate that phase-one firms delivered $47.2 billion of regulatory IM and received $46.6 billion of regulatory IM for non-cleared derivatives transactions. Given that only phase-one firms were required to deliver or receive IM for non-cleared derivatives at that time, the fact these regulatory IM amounts are very similar is to be expected.

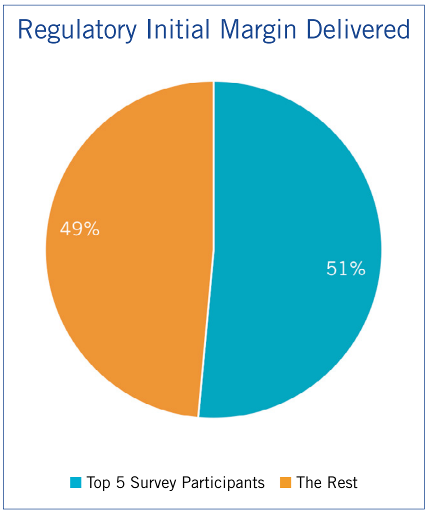
In addition to regulatory IM, phase-one firms delivered an estimated $16.3 billion of discretionary IM for non-cleared derivatives transactions as of March 31, 2017, and received $60.5 billion of discretionary IM for such transactions. The difference in discretionary IM delivered and received is likely due to the fact that phase-one firms are more likely to have one-way credit support documentation in place that only requires their non-phase-one counterparties (but not themselves) to post IM.

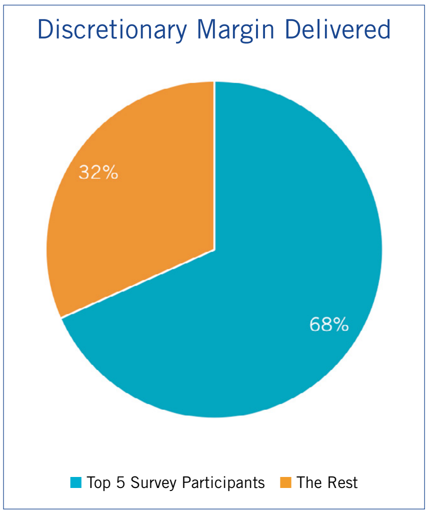
We estimate that VM delivered by phase-one firms totaled $685 billion and variation margin received by phase-one firms totaled $870.4 billion as of March 31, 2017.

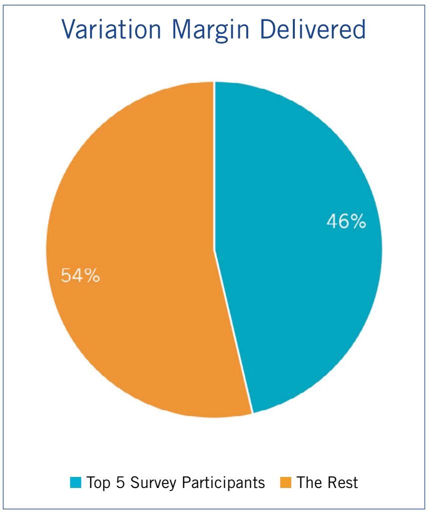
[4] These amounts exclude related party trades (ie, inter-company or inter-affiliate) and collateral received or delivered in connection with spot foreign exchange transactions

Margin Concentration[5]

There is some concentration in both IM and VM for phase-one firms. The top-five firms by amount of collateral out of the 18 respondents represented about 51% of regulatory IM, 68% of discretionary IM and 46% of VM delivered by phase-one survey participants.

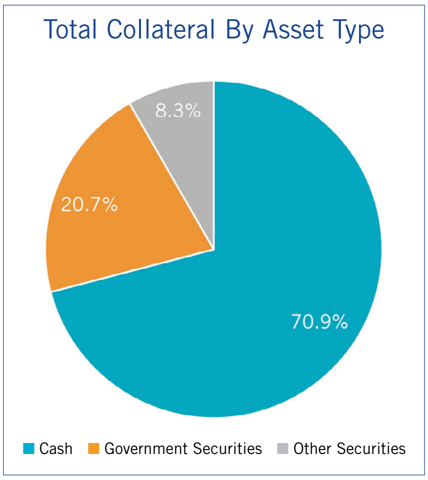






Types of Collateral Assets

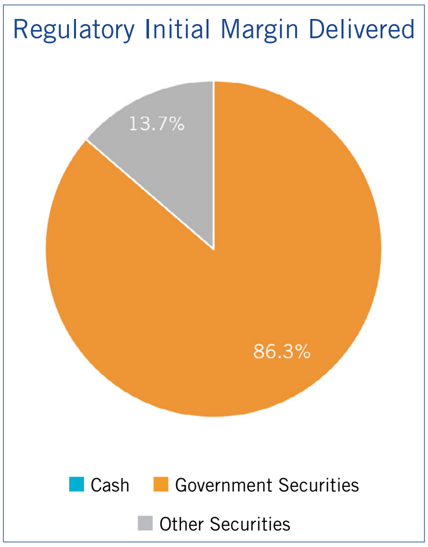
The survey results show that cash represented the majority of the collateral for phase-one participants. As of March 31, 2017, cash contributed 70.9% of total collateral, government securities comprised 20.7% and other securities made up 8.3%.

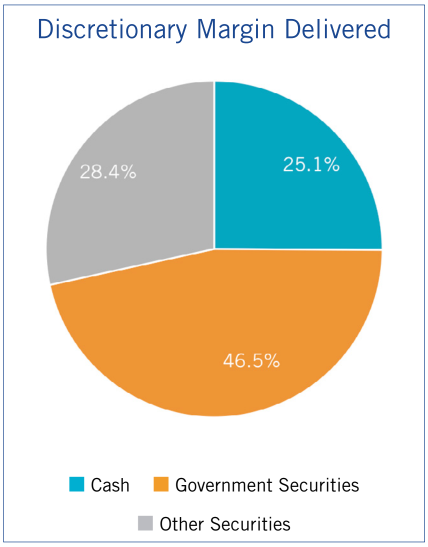


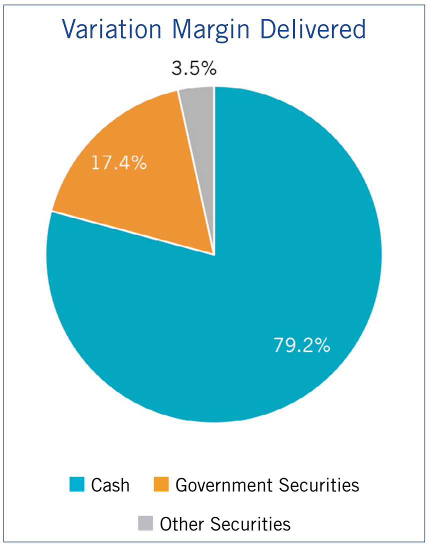
[5] This and the following sections on non-cleared derivatives are based only on the amounts actually reported by the 18 firms that participated in the survey and not on the estimated amounts as noted on page 3

Composition of Collateral for IM and VM

Based on the survey results, phase-one market participants mostly use government securities for meeting regulatory IM requirements. That's because the margin regulations stipulate IM has to be bankruptcy remote, which is much easier to implement using securities. For VM, cash is the primary form of collateral used. VM covers mark-to-market movements and can change daily. The VM a firm receives for a non-cleared derivatives position might be required to pay for the VM of the cleared hedge position. These flows can be best implemented with cash.







Composition of Collateral for Received and Delivered Margin

Cash comprised 69.3% of total margin received (including IM and VM) compared to 73% of total margin delivered. Government securities and other securities contributed 19.5% and 11.2%, respectively, of total margin received and 22.3% and 4.6%, respectively, of total margin delivered for phase-one firms.

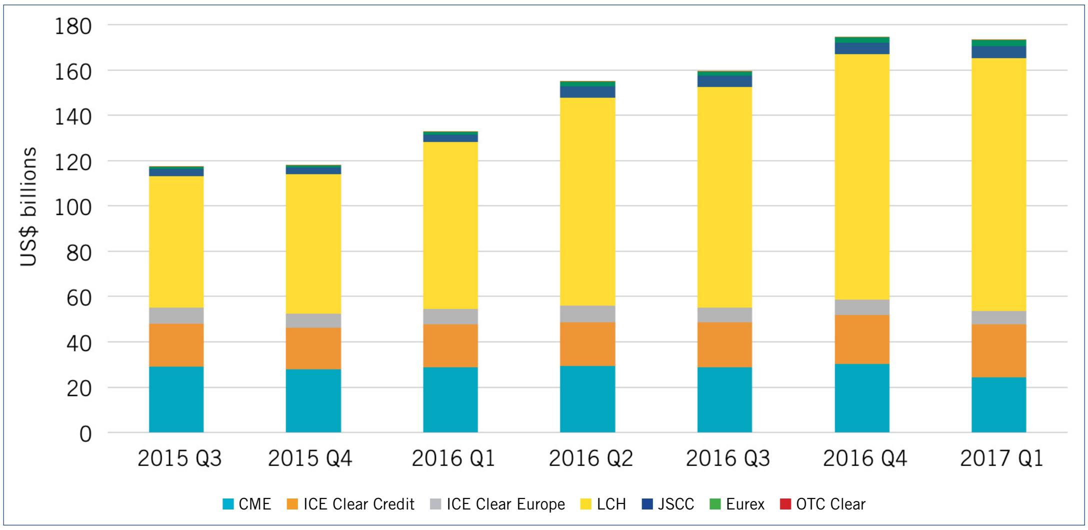
	Total Margin Received	Total Margin Delivered
Cash	69.3%	73.0%
Government Securities	19.5%	22.3%
Other Securities	11.2%	4.6%

IM AND VM FOR CLEARED DERIVATIVES

Initial margin for cleared derivatives reached $173.4 billion as of March 31, 2017

Based on the CCP CPMI-IOSCO public quantitative disclosures, the amount of IM for cleared derivatives, including IRS and CDS, has been gradually increasing over the past several years, and reached $173.4 billion as of March 31, 2017 compared with $117.3 billion as of September 30, 2015[6].

Required Initial Margin for IRS and CDS

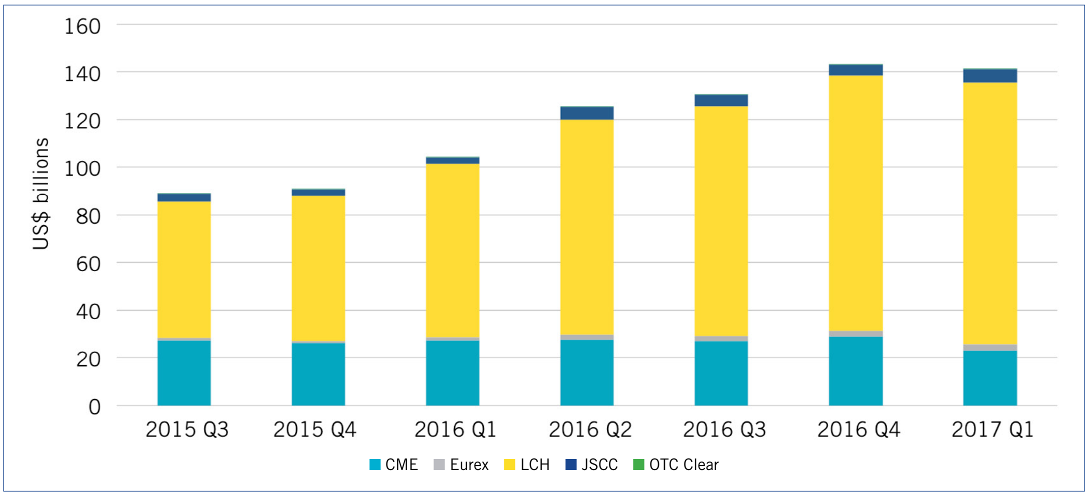


Source: CCP disclosures

Required IM for IRS and CDS

Required IM for IRS grew by about 58.7%, from $88.9 billion at the end of the third quarter of 2015 to $141.1 billion at the end of the first quarter of 2017. IM for CDS grew by 13.7% over the same period, from $28.4 billion to $32.3 billion.

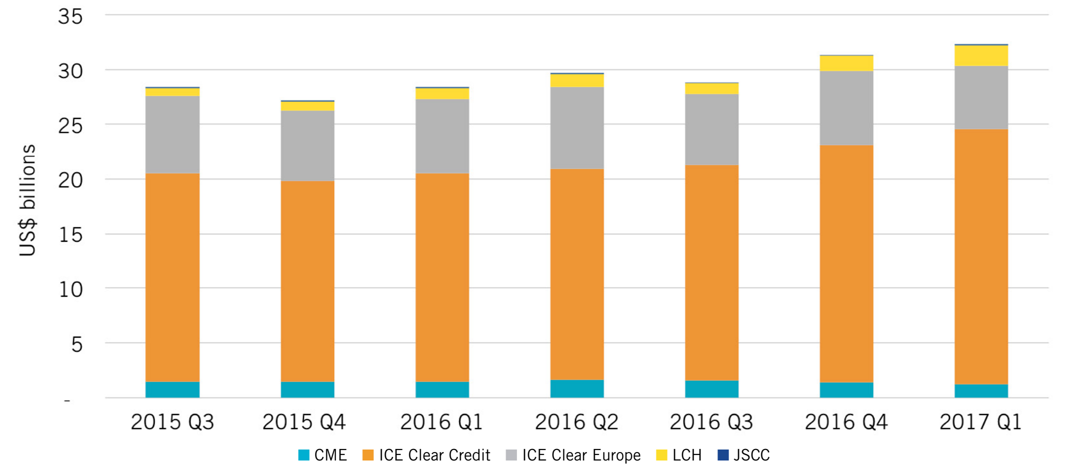
Required Initial Margin for IRS



Source: CCP disclosures

[6] CCPs have been providing quarterly CPMI-IOSCO public quantitative disclosures starting in the third quarter of 2015

Required Initial Margin for CDS



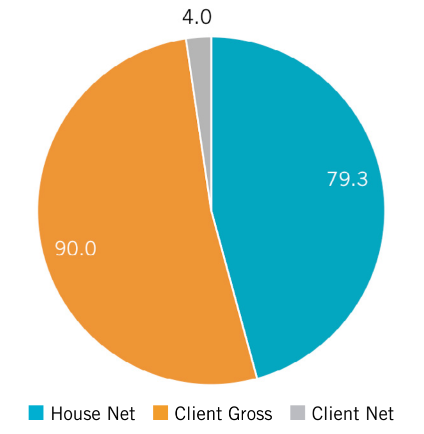
Source: CCP disclosures

Client and House Required IM

As of March 31, 2017, IM posted by clearing members for their own positions (house net) totaled \$79.3 billion compared with \$94 billion of client IM, out of which \$90.0 billion was margin calculated on a gross basis and \$4 billion on a net basis[7].

The portion of the client gross margin relative to the house net margin has been gradually increasing, from 43% in in the third quarter of 2015 to 52% in the first quarter of 2017.

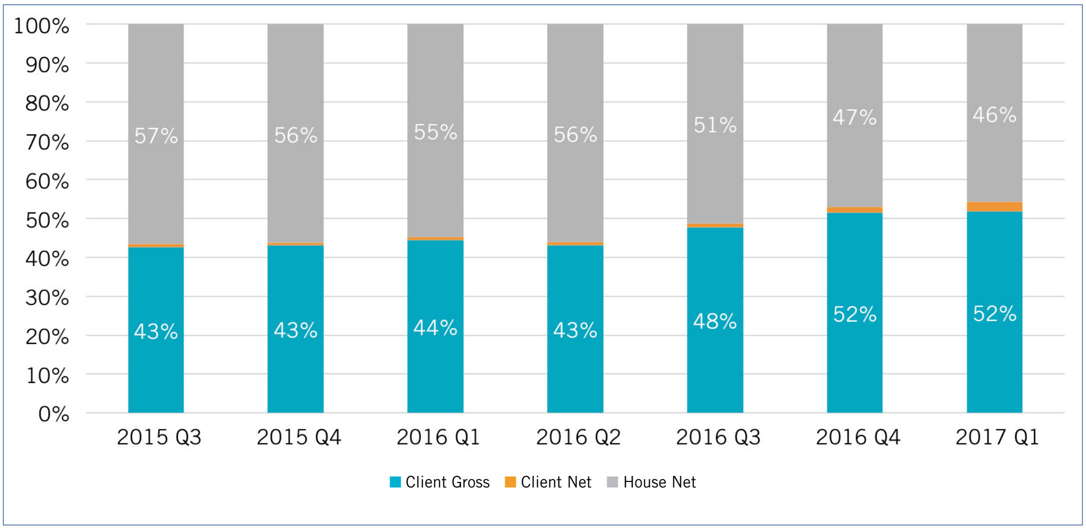
Required Initial Margin (US$ billions)



Source: CCP disclosures as of March 31, 2017

[7] Under a net margin structure, a clearing member only passes through to the CCP the net exposure across a set of clients, thereby retaining much of the client margin. Under a gross structure, the margins are posted in full to the CCP

Required Initial Margin



Source: CCP disclosures

Estimated VM

While CCPs do not disclose total VM paid by CCP participants, we estimate VM for the first quarter of 2017 (only for CDS and IRS products) at about $260.8 billion[8].

	Average Total VM Paid to the CCP by Participants Each Business (1)	Estimated VM (2)
CME	2,537,251,501	30,769,771,169
Eurex Clearing	922,498,602	3,098,739,425
ICE Clear Credit	84,286,582	5,225,768,108
ICE Clear Europe	63,194,419	4,044,442,795
JCCC	79,377,178	4,683,253,503
LCH SA	10,481,568	670,820,352
LCH Ltd	3,316,337,500	212,245,600,000
OTC Clearing Hong Kong Limited	634,213	37,418,577
Total	7,014,061,564	260,775,813,928

(1) Based on CCPs dislosures as of March 31, 2017; converted to US$ as of March 31, 2017

(2) Estimated for Q1 2017 only for CDS and IRS products; US$

[8] We calculated VM by multiplying the average total variation margin paid to the CCP by participants for each business – which is disclosed by CCPs – by the number of business days in the quarter and estimated the share of VM for IRS and CDS based on the pro-rata contribution of the IM

PUTTING MARGIN AMOUNTS IN PERSPECTIVE

We estimate that total notional of cleared derivatives was $285 trillion compared with $169 trillion of non-cleared derivatives at end-December 2016

According to the Bank for International Settlements (BIS) semiannual OTC derivatives statistics for the end of 2016, the notional outstanding of all derivatives transactions was $483 trillion. This included $368.4 trillion in interest rate derivatives, $68.6 trillion in foreign exchange contracts, $10 trillion in credit derivatives, $6.1 trillion in OTC equity-linked derivatives, $1.3 trillion in OTC commodity derivatives and a $28.3 trillion unallocated portion[9].

The BIS estimates that 76% of the interest rate derivatives market, 44% of CDS and only 1% of OTC FX notional amount was cleared through CCPs at year-end 2016. Assuming that equity-linked and commodity derivatives are non-cleared, and excluding $28 trillion of unallocated positions, we estimate that total notional of cleared derivatives was $285 trillion compared with $169 trillion of non-cleared derivatives at end-December 2016.

Against the $285 trillion of cleared derivatives, clearing participants have posted IM of $173.4 billion with CCPs as of March 31, 2017. We estimate VM paid to CCPs by clearing participants for CDS and IRS products at the end of first quarter of 2017 was about $260.8 billion.

With regards to the $169 trillion size estimate for non-cleared derivatives, the 20 phase-one firms have received an estimated $107.1 billion in IM and $870.4 billion in VM. However, it is important to understand that the amount of the non-cleared segment subject to margin requirements is likely to be significantly smaller than our estimate of $169 trillion due to a variety of reasons. This includes the fact that legacy trades transacted prior to the implementation of the margin rules did not require regulatory IM (although IM may have been required as a result of counterparty negotiation). In addition, certain types of counterparties – such as non-financial corporates that pose no systemic risk – are exempt from the rules, while others will never exceed the minimum thresholds[10]. Certain types of products, primarily physically settled FX swaps and forwards, are also exempt[11,12].

	Cleared OTC Derivatives	Non-cleared OTC Derivatives
Notional outstanding (1)	**285.0**	**169.3**
Required IM at CCPs (2)	**173.4**	
Estimated IM Received (3)		**107.1**
Estimated IM Delivered (3)		**63.6**
VM at CCPs (2)	**260.8**	
Estimated VM Received (4)		**870.4**
Estimated VM Delivered (4)		**685.0**

(1) US$ trillions as of Dec. 31, 2016 (2) US$ billions as of March 31, 2017; only for IRS and CDS

(3) Includes regulatory and discretionary IM; US$ billions as of March 31, 2017 (4) US$ billions as of March 31, 2017

9 http://www.bis.org/publ/otc_hy1705.htm

10 National margin regulations based on the margin framework published by the Basel Committee on Banking Supervision and IOSCO stipulate that if a party to a transaction has an aggregate notional amount of outstanding non-cleared derivatives transactions that is less than €8 billion (or a similar figure in the currency of the national rules), calculated in accordance with the calculation method and during the calculation period applicable under the relevant rules, then the IM requirements will not apply

11 Physically settled FX swaps and forwards are subject to variation margin requirements under EU rules

12 Additional exemptions vary between jurisdictions, but may include:
- Intra-group transactions
- Exemption for IM (referred to as a 'threshold amount' under a credit support annex) between two firms, up to a maximum of €50 million (or a similar figure in the currency of the national rules), calculated at a group level
- Hedging in covered bond issues
- In some jurisdictions, a counterparty will not be required to post any VM or IM for OTC derivatives with counterparties domiciled in non-netting jurisdictions, but may still be required to collect margin from those counterparties. Under EU regulations, there is no requirement to collect or post VM or IM when certain conditions are met and the counterparty is in a non-netting jurisdiction, subject to a cap of 2.5% of the regulated party's OTC derivatives by notional amount

OVERVIEW OF THE MARGIN RULES FOR NON-CENTRALLY CLEARED DERIVATIVES

New margining rules for non-cleared derivatives are being rolled out in multiple jurisdictions

The margin rules for non-cleared derivatives, which require the mandatory positing of IM and VM for OTC derivatives that are not cleared through CCPs, entered into force from September 1, 2016. These rules originate from a global policy framework and schedule established by the Basel Committee and IOSCO.

In the US, five federal agencies, including the Federal Reserve, the Office of the Comptroller of the Currency, the Federal Deposit Insurance Corporation, the Federal Housing Finance Agency and the Farm Credit Administration (the prudential regulators) finalized their rules for the margining of non-cleared derivatives in November 2015. The Commodity Futures Trading Commission (CFTC) separately adopted capital and margin requirements rules for swap entities that do not have a prudential regulator in January 2016. In the European Union (EU), the European Commission's final rules for non-cleared derivatives margin under the European Market Infrastructure Regulation (EMIR) were published in the Official Journal of the EU in January 2017.

Margin rules apply to covered swap entities and financial end users under the US rules, and financial counterparties and systemically important non-financial entities above the clearing threshold under the EU rules. The margin requirements cover non-centrally cleared OTC derivatives and apply only to new transactions that took place after the rule implementation date. The margin rules are based on aggregate average notional amounts of non-cleared derivatives (on a consolidated basis with affiliates), which determine the compliance dates for IM and VM. The rules provide exemptions for certain products (eg, physically settled FX swaps and forwards, except in the EU) and certain entities (eg, sovereigns, and central banks).

In the US, Canada and Japan, the IM and VM requirements took effect on September 1, 2016 for the phase-one dealers (those with notional amounts of non-cleared derivatives above $3 trillion, C$5 trillion or ¥420 trillion, respectively). Other firms will become subject to initial margin requirements over a four-year phase-in through to September 2020. Variation margin requirements came into effect for a wider universe of entities from March 1, 2017. However, the CFTC issued a no-action relief letter providing a six-month grace period for registered swap dealers to comply with the variation margin requirements as many market participants were not ready to meet the new requirements. Similar forbearance was provided by other regulators, including US prudential regulators, the Office of the Superintendent of Financial Institutions (OSFI), the Japanese Financial Services Agency and the European Supervisory Authorities (ESAs).

In Europe, the rules requiring the mandatory posting of IM and VM entered into force in February 2017 for entities with group notional amount above €3 trillion (phase-one firms). All other in-scope entities became subject to the variation margin requirements in March 2017, but may have been able to take advantage of regulatory forbearance. Implementation of IM requirements for entities subject to EU rules with notional amount below €3 trillion will be phased-in from September 2017 to September 2020, in line with the Basel Committee-IOSCO schedule. Phase-two implementation of IM requirements went into effect on September 1, 2017.

ISDA

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ABOUT ISDA

Since 1985, ISDA has worked to make the global derivatives markets safer and more efficient. Today, ISDA has more than 875 member institutions from 68 countries. These members comprise a broad range of derivatives market participants, including corporations, investment managers, government and supranational entities, insurance companies, energy and commodities firms, and international and regional banks. In addition to market participants, members also include key components of the derivatives market infrastructure, such as exchanges, clearing houses and repositories, as well as law firms, accounting firms and other service providers. Information about ISDA and its activities is available on the Association's web site: www.isda.org.