April 2019

ISDA Research Study

ISDA MARGIN SURVEY YEAR-END 2018

The ISDA Margin Survey looks at the impact of regulatory and other changes on collateral practices, and analyzes the amount and type of initial margin (IM) and variation margin (VM) posted for non-cleared derivatives, and the IM posted for cleared transactions.

The survey finds that the 20 largest market participants (phase-one firms) collected approximately $157.9 billion of regulatory and discretionary IM for their non-cleared derivatives transactions at year-end 2018. Of this amount, $83.8 billion was collected from counterparties currently in scope of the margin regulatory requirements. A further $74.1 billion of discretionary IM was collected from counterparties and/or for transactions not currently in scope of the rules.

In addition to these amounts, phase-one firms reported they had set aside $39.4 billion of IM for their inter-affiliate derivatives transactions to meet US prudential rules at year-end 2018.

Seven other market participants – four phase-two firms and three phase-three entities – provided data for the survey. The total amount of IM collected by these firms was $4.8 billion at year-end 2018.

The survey also finds that $217.9 billion in IM had been posted by all market participants to major central counterparties (CCPs) for their cleared interest rate derivatives (IRD) and credit default swap (CDS) transactions at the end of 2018.

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SUMMARY

Initial and variation margin collected by the 20 phase-one firms for their non-cleared derivatives transactions totaled $1.06 trillion at year-end 2018

- The amount of regulatory IM has been increasing since the introduction of margin rules for non-cleared derivatives in September 2016[1], as more firms and new transactions have become subject to the requirements[2].

- The survey finds that 27 firms, including 20 phase-one, four phase-two and three phase-three firms, collected about $162.7 billion of IM in 2018[3].

- IM collected by phase-one firms for their non-cleared derivatives transactions totaled approximately $157.9 billion at year-end 2018[4]. This represents an increase of 47% over the $107.1 billion of IM that phase-one entities had collected at the end of the first quarter of 2017[5], shortly after the introduction of the margin rules for phase-one firms.

  - $83.8 billion of the IM collected by phase-one firms was required under global margin regulations, and came from phase-one, phase-two and phase-three firms currently in scope of the margin rules. This represents an increase of 80% compared to the $46.6 billion of regulatory IM collected at the end of the first quarter of 2017.

  - $74.1 billion of IM collected by phase-one firms was discretionary IM, and was received from counterparties and/or for transactions not in scope of the margin requirements, including legacy transactions[6]. This represents a 22% increase compared to $60.5 billion of discretionary IM collected at the end of the first quarter of 2017.

  - Phase-one firms also posted about $10.1 billion of discretionary IM for non-cleared derivatives transactions at the end of 2018, compared to $16.3 billion posted at the end of the first quarter of 2017. The difference in discretionary IM collected/posted ($74.1 billion versus $10.1 billion) is likely because collateral agreements that phase-one firms traditionally had in place with non-dealer counterparties typically required only those counterparties to post IM.

[1] There are five phases to the margin rules for non-cleared derivatives. Currently, firms in phases one, two and three are required to post IM. There are 20 phase-one firms, six phase-two firms and eight phase-three firms. Of these, all 20 phase-one firms contributed data to this analysis, as did four phase-two and three phase-three firms. An explanation of the five phases of the margin rules for non-cleared derivatives can be found at the end of this report

[2] See the appendix for a brief summary of the margin regulations

[3] See Footnote 1

[4] These amounts exclude margin posted for inter-affiliate transactions

[5] ISDA Margin Survey, September 2017: www.isda.org/a/VeiDE/margin-survey-final1.pdf

[6] Legacy transaction are trades entered prior to the regulatory IM compliance date. Counterparties, particularly dealer counterparties, commonly required IM to be posted to them for non-cleared derivatives trades

- Additionally, phase-one firms collected $39.4 billion of IM for their inter-affiliate derivatives transactions at year-end 2018[7].

- IM collected by four phase-two firms and three phase-three firms that participated in the survey totaled $4.8 billion at year-end 2018, including $2.2 billion of regulatory IM and $2.6 billion of discretionary IM.

- VM collected by phase-one firms for non-cleared derivatives totaled $858.6 billion, and VM posted by phase-one firms was $583.9 billion at year-end 2018. For comparison, phase-one firms received $870.4 billion and posted $685.0 billion of VM at the end of the first quarter of 2017.

- For cleared IRD and both single-name and index CDS, IM posted at all major CCPs by all market participants totaled $217.9 billion at the end of 2018. This represents an increase of 12.2% from the $194.1 billion posted at the end of 2017.

    - $173.3 billion of this amount represents IM posted for IRD products. Open interest in IRD products across five major CCPs totaled $346.0 trillion at year-end 2018.

    - $44.7 billion of IM was posted by market participants for CDS transactions. Open interest in CDS products at four major CCPs was $1.9 trillion at year-end 2018.

[7] In the US, banks subject to supervision by US prudential regulators are required to post IM for inter-affiliate transactions. Inter-affiliate swaps are internal risk transfers between two legally separate subsidiaries. Inter-affiliate transactions are exempt from the margin rules in most other jurisdictions. See 17 C.F.R. § 23.159; 80 FR 74839. CFTC margin rules do not require covered swap entities to collect IM from the affiliates unless they enter into transactions with non-US affiliates that are not subject to comparable IM collection requirements. However, the CFTC margin rules require CFTC covered swap entities to post IM to the affiliates that are prudentially regulated swap entities

METHODOLOGY AND PARTICIPANTS

ISDA's Margin Survey analyzes the amount and type of collateral posted for non-cleared and cleared derivatives transactions

- Recent regulation in many jurisdictions requires or will require entities 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's collateral best practices. The exchange of VM for derivatives transactions was common, and some firms also posted IM under bilaterally negotiated collateral arrangements.
- ISDA's Margin Survey assesses the amount and type of collateral that is being posted for non-cleared and cleared derivatives transactions.
- For non-cleared derivatives, ISDA surveyed 20 firms with the largest derivatives exposures. These firms were subject to the first phase of 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).
- ISDA also surveyed phase-two and phase-three firms that were subject to the regulations from September 2017 and September 2018, respectively. Responses were received from four phase-two entities (out of the six in scope) and three phase-three firms (out of the eight entities subject to the rules).
- For cleared derivatives, the survey uses publicly available margin data from two US CCPs (CME and ICE Clear Credit), four European CCPs (Eurex Clearing, ICE Clear Europe, 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 IM for IRD 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 amount of regulatory IM collected by phase-one firms grew to $83.8 billion at the end of 2018

The survey finds that 27 companies, including 20 phase-one, four phase-two and three phase-three firms that participated in the survey this year, collected about $162.7 billion IM in 2018[8].

At year-end 2018, phase-one firms received $83.8 billion and posted about $83.2 billion of regulatory IM for non-cleared derivatives transactions[9]. Given the margin rules for non-cleared derivatives require two-way IM exchange between in-scope counterparties (each is required to post IM and collect IM from its counterparty), the amount of IM received and the amount of IM delivered are approximately the same[10].

Regulatory and Discretionary IM for Non-cleared Derivatives (Phase-one firms only)

	2018	Q4 2017	Q1 2017	2018 vs. Q4 2017	2018 vs. Q1 2017
Regulatory Initial Margin Received	83.8	73.7	46.6	14%	80%
Discretionary Initial Margin Received	74.1	56.9	60.5	30%	22%
Total Initial Margin Received	157.9	130.6	107.1	21%	47%
Regulatory Initial Margin Posted	83.2	75.2	47.2	11%	76%
Discretionary Initial Margin Posted	10.1	6.4	16.3	57%	-38%
Total Initial Margin Posted	93.3	81.7	63.5	14%	47%

In US$ billions; 2018 and 2017 numbers are converted to US$ based on the exchange rates as of December 31, 2018, December 29, 2017 and March 31, 2017, respectively (www.x-rates.com/table/?from=USD&amount=1)

The amount of regulatory IM received at year-end 2018 grew by 14% compared with year-end 2017, and increased by 80% compared with the end of the first quarter of 2017. The amount of regulatory margin posted increased by 11% and 76%, respectively, over the same periods.

In ISDA's view, the increase in regulatory IM is mainly driven by two factors: (1) new non-cleared derivatives transactions executed by phase-one and phase-two firms; and (2) the extension of the margin requirements to phase-three firms, which became subject to the IM requirements from September 2018. As transactions executed before the implementation date are exempt from the IM rules, a larger part of the portfolio falls under the scope of the new regulation each month. As more firms and more transactions become subject to the margin requirements, ISDA expects regulatory IM to continue to grow.

Discretionary IM

In addition to regulatory IM, phase-one firms collected $74.1 billion of discretionary IM for non-cleared derivatives transactions in 2018, and posted $10.1 billion of discretionary IM. Discretionary IM reflects margin posted and collected under collateral agreements with counterparties not currently in scope of the margin rules. It also captures IM posted for transactions that are not covered by the margin rules, including legacy transactions. The difference in discretionary IM received and posted is probably because phase-one firms are more likely to have one-way credit support documentation in place that only requires their out-of-scope counterparties (but not themselves) to post IM.

8 As ISDA did not receive sufficient responses from phase-two firms in the prior survey, it is not possible to provide year-over-year comparison for phase-two firms. Therefore, the analysis covers only phase-one firms

9 These amounts exclude collateral received or delivered in connection with spot foreign exchange transactions. However, some firms indicated that collateral posted or received in connection with spot FX transactions may be included should the credit support annex (CSA) determine that these should be collateralized

10 Differences in the amounts of regulatory IM delivered and received are assumed to be attributed in part to differences in the scope of derivatives subject to regulatory IM in different jurisdictions

The amount of discretionary IM received increased by 22% versus the end of the first quarter of 2017, while discretionary IM posted declined by 38% over the same period. Phase-one firms received $60.5 billion of discretionary IM and posted $16.3 billion of discretionary IM for non-cleared derivatives transactions at the end of the first quarter of 2017.

IM collected by the four phase-two and three phase-three firms that participated in the survey totaled $4.8 billion at year-end 2018, including $2.2 billion of regulatory IM and $2.6 billion of discretionary IM.

Inter-affiliate IM

Phase-one firms collected $39.4 billion of IM for inter-affiliate derivatives transactions at year-end 2018[11]. Inter-affiliate swaps are internal risk transfers between two legally separate subsidiaries, and are commonly used by financial institutions in connection with their role as market intermediaries and by end users to hedge capital and manage balance sheet risks.

Global financial institutions frequently offer derivatives to clients from a legal entity in the local jurisdiction in which the client resides. This arrangement occurs either to comply with local regulations or to meet the needs of the client. Rather than house risk in multiple legal entities across multiple jurisdictions, these global entities might execute an external-facing derivative with the client locally, and then enter into a mirroring internal transaction to transfer the risk to a centralized entity overseas. These internal transfers allow global institutions to net their firm-wide exposures and centrally manage their derivatives books.

Variation Margin

VM for non-cleared derivatives received and posted by phase-one firms totaled $858.6 billion and $583.9 billion, respectively, at the end of 2018. This includes both regulatory and discretionary VM[12]. VM received fell by 4% compared with $893.7 billion at the end of 2017, and dropped by 1% versus $870.4 billion at the end of the first quarter of 2017. VM posted decreased by 8% and 15%, respectively, over the same periods.

VM for Non-cleared Derivatives (Phase-one firms only)

	2018	Q4 2017	Q1 2017	2018 vs. Q4 2017	2018 vs. Q1 2017
Variation Margin Received	858.6	893.7	870.4	-4%	-1%
Variation Margin Posted	583.9	631.7	685.0	-8%	-15%

In US$ billions; 2018 and 2017 numbers are converted to US$ based on the exchange rates as of December 31, 2018, December 29, 2017 and March 31, 2017, respectively (https://www.x-rates.com/table/?from=USD&amount=1)

[11] The question on inter-affiliate IM was not included in the prior surveys

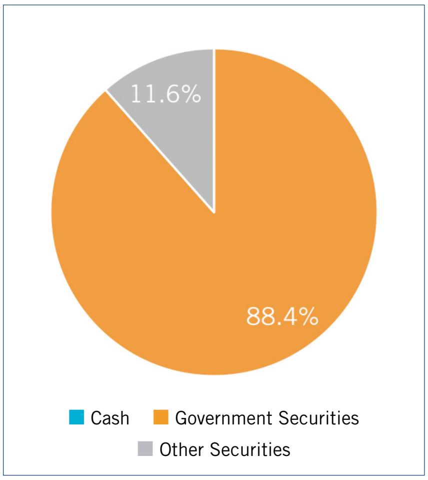
[12] As not all survey participants provided the split between regulatory and discretionary VM, this analysis uses the combined number

Composition of Collateral for IM and VM

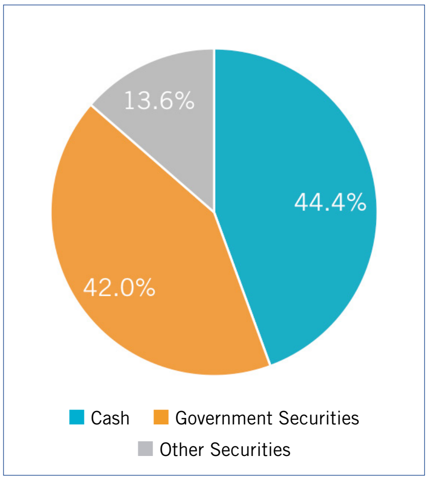
Based on the survey results, phase-one market participants mostly use government securities for meeting regulatory IM requirements. That is because the margin regulations stipulate that IM has to be bankruptcy remote, which is much easier to implement using securities[13]. At the end of 2018, regulatory IM posted included 88.4% of government securities and 11.6% of other securities.

For discretionary IM and VM, cash is more widely 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 cover the VM of a cleared hedge position, and these flows can be implemented more easily with cash. At the end of 2018, discretionary IM posted included 42.0% of government securities, 44.4% of cash and 13.6% of other securities. Cash contributed 86.5% of VM posted, while government securities and other securities were 12.0% and 1.5%, respectively.

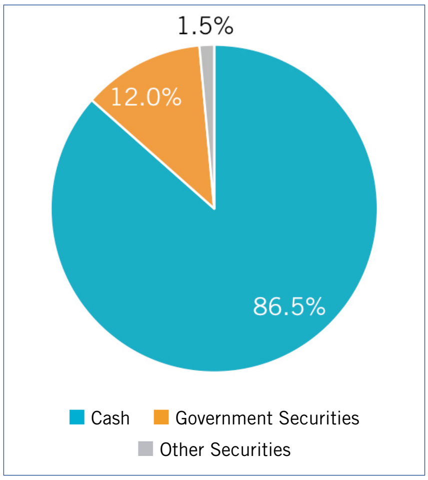
Regulatory Initial Margin Posted



Discretionary Initial Margin Posted



Variation Margin Posted



Composition of Collateral for Posted and Received Margin

Cash comprised 68.5% of total margin received compared to 75.3% of total margin posted (including IM and VM) at the end of 2018. Government securities and other securities contributed 20.9% and 10.6%, respectively, of total margin received, and 21.9% and 2.9%, respectively, of total margin posted at the end of 2018.

Composition of Collateral

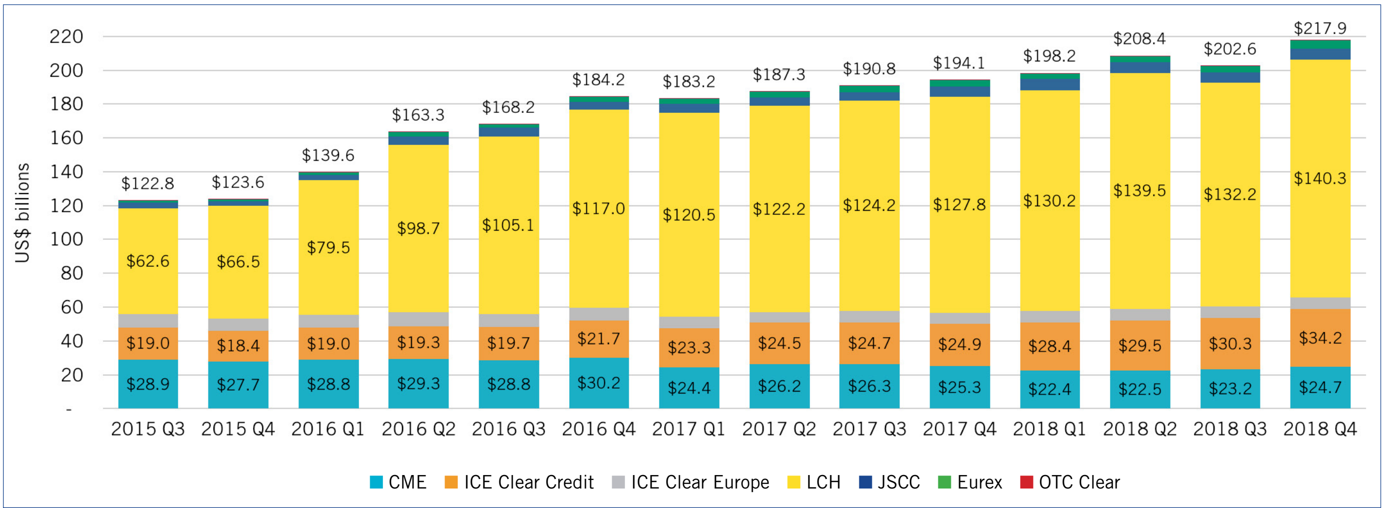
	Total Margin Received	Total Margin Posted
Cash	**68.5%**	**75.3%**
Government Securities	**20.9%**	**21.9%**
Other Securities	**10.6%**	**2.9%**

[13] If cash was held with the third-party custodian, it could be bankruptcy remote from the counterparty receiving the collateral, but it would not be bankruptcy remote from the custodian (with certain exceptions possible in a few jurisdictions)

IM FOR CLEARED DERIVATIVES

Based on the CPMI-IOSCO public quantitative disclosures for CCPs, the amount of IM for cleared derivatives, including IRD and CDS, continued to increase in 2018. At the end of the fourth quarter of 2018, total IM for IRD and CDS products reached $217.9 billion, compared with $194.1 billion at the end of the fourth quarter of 2017[14].

IM for IRD and CDS

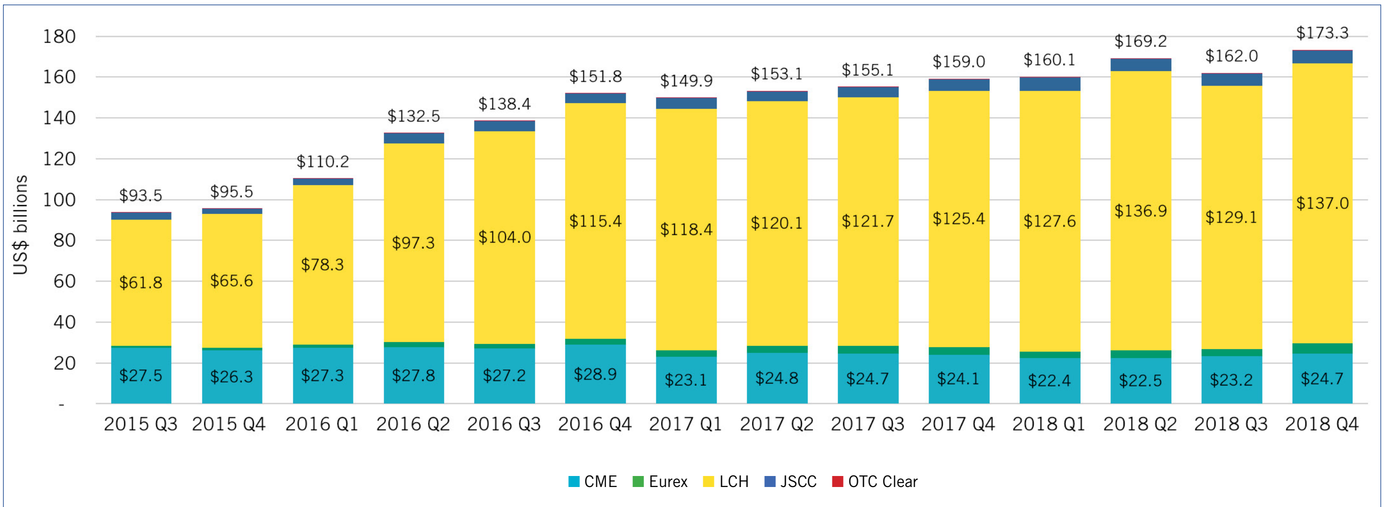


Source: CCP disclosures

IM for Cleared IRD and CDS

IM for cleared IRD grew by about 8.9%, from $159.0 billion at the end of the fourth quarter of 2017 to $173.3 billion at the end of the fourth quarter of 2018. The growth in IM was mainly driven by a 9.3% IM increase at LCH.

IM for Cleared IRD

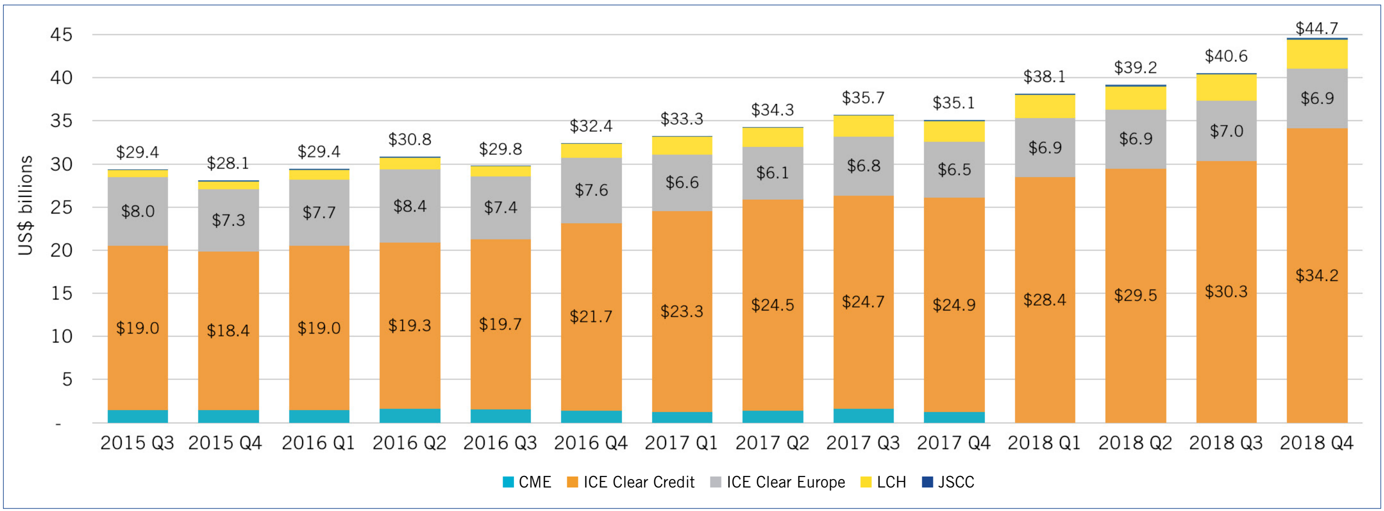


Source: CCP disclosures

[14] CCPs have been providing quarterly CPMI-IOSCO public quantitative disclosures since the third quarter of 2015. All numbers are converted to US$ based on the exchange rates as of December 31, 2018: www.x-rates.com/historical

IM for cleared CDS grew by 27.2%, from $35.1 billion at the end of the fourth quarter of 2017 to $44.7 billion at the end of the fourth quarter of 2018. The growth in IM was mainly driven by a 37.2% IM increase at ICE Clear Credit.

IM for Cleared CDS

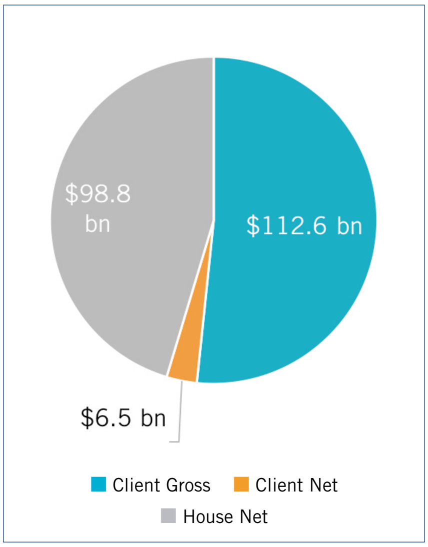


Source: CCP disclosures

Client and House IM

At the end of the fourth quarter of 2018, IM posted by clearing members for their own positions (house net) totaled $98.8 billion compared with $119.1 billion of client IM, out of which $112.6 billion was margin calculated on a gross basis and $6.5 billion was calculated on a net basis[15].

Client and House IM

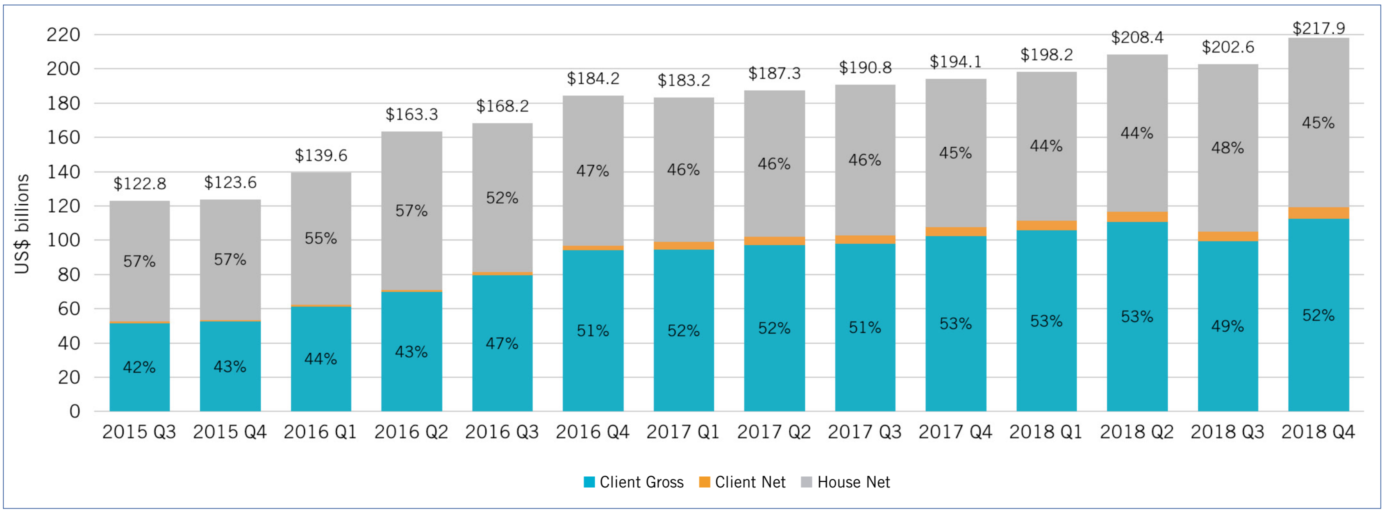


Source: CCP disclosures as of Q4 2018

[15] Under a net margin structure, a clearing member only passes through to the CCP the net margin across a set of clients, thereby retaining part of the client margin. Under a gross structure, the margin of all clients is posted in full to the CCP

At the end of the fourth quarter of 2018, client gross margin represented about 52% of total IM, while house net margin was 45%. Client net margin contributed about 3% of total IM. At the end of the fourth quarter of 2017, client gross margin represented about 53% of total IM, while house net margin was 45%.

Client and House IM



Source: CCP disclosures

Open Interest

At year-end 2018, IRD open interest across five major CCPs totaled $346.0 trillion, while total CDS open interest at four major CCPs was about $1.9 trillion[16,17]. Against these exposures, CCPs collected $173.3 billion of IM for IRD products and $44.7 billion of IM for CDS products.

Open Interest (US$ trillions)

	IRD	CDS
CME Group	16.2	
Eurex Clearing	9.1	
ICE Clear Credit		1.2
ICE Clear Europe		0.5
Japan Securities Clearing Corporation (JSCC)	11.8	0.01
LCH SA*	-	0.2
LCH Ltd	308.8	
OTC Clearing Hong Kong Limited (OTC Clear)	0.1	
Total	346.0	1.9

*LCH SA open interest is as of April 1, 2019, as the company does not disclose historical data

Source: CCPs websites

[16] Open interest is a common concept in futures and options market, but is also used in the over-the-counter (OTC) derivatives market to indicate notional outstanding. For IRD products, open interest is the total notional outstanding of the aggregated double-counted volume of all active trades. When a derivatives trade is cleared by a CCP, the initial contract between two counterparties is replaced by two new contracts between each counterparty and a CCP. For CDS products, open interest is the sum of all clearing participants' outstanding net long positions against a CCP, which results in single-sided amounts

[17] Data on open interest was collected from CCPs websites. All numbers are converted to US$ based on the exchange rates as of December 31, 2018: www.x-rates.com/historical

IM requirements for non-cleared derivatives are being rolled out to a wider universe of derivatives users

OVERVIEW OF THE MARGIN RULES FOR NON-CLEARED DERIVATIVES

The margin rules for non-cleared derivatives, which require the mandatory posting of IM and VM, originate from a global policy framework and schedule established by the Basel Committee on Banking Supervision and IOSCO.

In the US, Canada and Japan, the IM requirements took effect on September 1, 2016 for phase-one entities. Phase-two firms became subject to the IM rules on September 1, 2017. The phase-three implementation date was September 1, 2018. IM requirements for other entities subject to the rules will be phased-in through to September 2020, in line with the Basel Committee-IOSCO schedule.

Effective Date*	US	Japan	Canada	Europe	Australia	Hong Kong	Singapore
01-Sep-16	$3.0 trillion	JPY 420 trillion	C$5.0 trillion	€3.0 trillion	AUD 4.5 trillion	HKD 24 trillion	SGD 4.8 trillion
01-Sep-17	$2.25 trillion	JPY 315 trillion	C$3.75 trillion	€2.25 trillion	AUD 3.375 trillion	HKD 18 trillion	SGD 3.6 trillion
01-Sep-18	$1.5 trillion	JPY 210 trillion	C$2.5 trillion	€1.5 trillion	AUD 2.25 trillion	HKD 12 trillion	SGD 2.4 trillion
01-Sep-19	$0.75 trillion	JPY 105 trillion	C$1.25 trillion	€0.75 trillion	AUD 1.125 trillion	HKD 6 trillion	SGD 1.2 trillion
01-Sep-20	$8 billion	JPY 1.1 trillion	C$12 billion	€8 billion	AUD 12 billion	HKD 60 billion	SGD 13 billion

* These effective dates are for US and Japan. The initial effective date for Europe was February 4, 2017, and for Australia, Hong Kong and Singapore was March 1, 2017. The remaining dates are aligned across these regions

VM requirements came into effect for a wide universe of entities from March 1, 2017. However, the Commodity Futures Trading Commission issued no-action relief that provided a six-month grace period for registered swap dealers to comply with the VM rules, following concerns that many market participants were not ready to meet the new requirements. Similar transitional relief or guidelines were 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, rules requiring the mandatory posting of IM and VM came into force in February 2017 for phase-one firms. All other in-scope entities were scheduled to post VM from March 2017, but may have been able to take advantage of regulatory guidance giving them additional time to come into full compliance. Phase-two and phase-three entities came into scope of the IM rules in September 2017 and September 2018, respectively. The IM requirements for other entities subject to the rules will be phased-in through to September 2020, in line with the Basel Committee-IOSCO schedule.

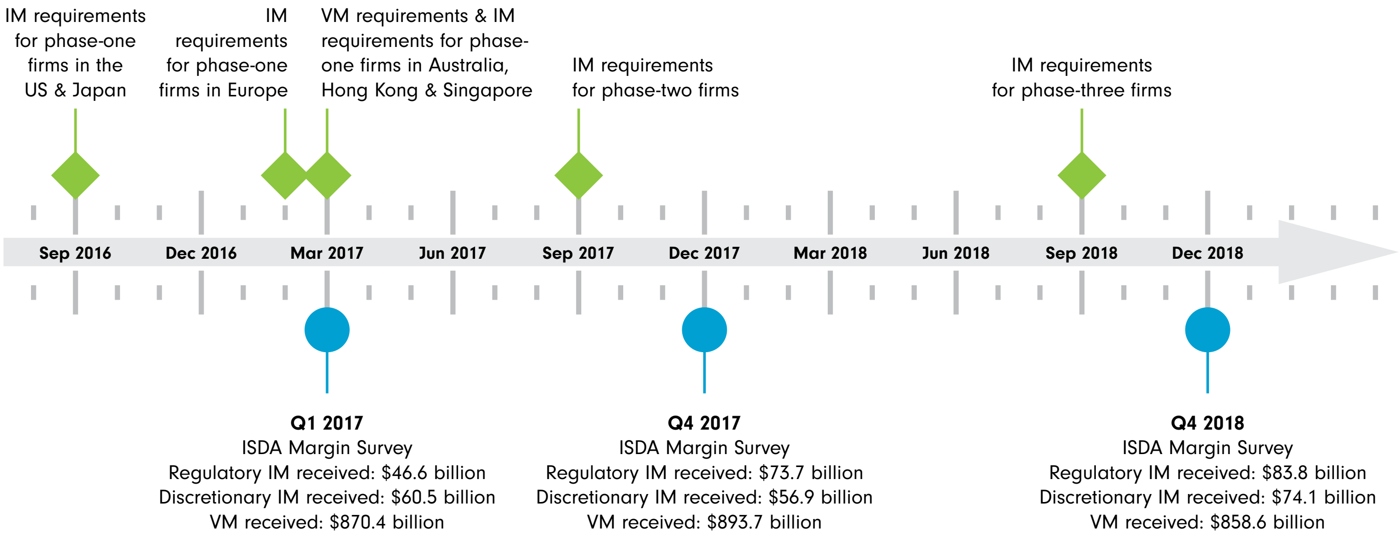
Margin rules apply to covered swap entities and financial end users under the US rules, and financial counterparties and systemically important non-financial entities above the clearing threshold under the EU framework. The margin requirements cover non-centrally cleared derivatives and apply only to new transactions that take place after the rule implementation date. The margin rules are based on the average aggregate 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 FX forwards) and certain entities (eg, sovereigns and central banks)[18,19].

[18] Physically settled FX swaps and forwards are subject to variation margin requirements under EU rules

[19] 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 for a counterparty 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

TIMELINE OF THE MARGIN RULES FOR NON-CLEARED DERIVATIVES



ISDA has published other recent research papers:

- ***Interest Rate Benchmarks Review: Full Year 2018 and the Fourth Quarter of 2018,*** January 2019
  https://www.isda.org/2019/01/29/interest-rate-benchmarks-review-full-year-2018-and-the-fourth-quarter-of-2018/

- ***SwapsInfo Full Year 2018 and Fourth Quarter of 2018 Review: Summary,*** January 2019
  https://www.isda.org/a/93TME/SwapsInfo-Full-Year-2018-and-Q4-2018-Review-Summary.pdf

- ***ISDA Margin Survey Full Year 2017,*** April 2018
  https://www.isda.org/a/oQmEE/ISDA-Margin-Survey-Full-Year-2017.pdf

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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 900 member institutions from 70 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, intermediaries, 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. Follow us on Twitter @ISDA