

# CME Clearing Q4 2020 Quantitative Disclosures Call

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April 2021

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# Speakers

## **Suzanne Sprague**

MD Credit & Liquidity/Risk Policy & Banking

## **Chelsea Gerdes**

Senior Risk Management Policy Associate

## **Sean Downey**

Executive Director, Clearing Risk and Capital Policy

# Agenda

1 Introduction

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2 Q4 2020 PQD Highlights

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3 Review of Key PQDs

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4 Additional Information

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5 Q&A

# Introduction

## CME Clearing: Q4 2020 Quantitative Disclosures Call

### CME Clearing provides clearing and settlement services for a broad range of exchange-traded futures and options on futures and cleared swaps

- Chicago Mercantile Exchange Inc. (“CME”) is registered with the Commodity Futures Trading Commission (“CFTC”) as a derivatives clearing organization (“DCO”) and was designated as a systemically important financial market utility under Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act by the Financial Stability Oversight Council
  - CME Clearing is subject to the core principles for DCOs defined under the Commodity Exchange Act and CFTC regulations promulgated thereunder (e.g., Part 39 of CFTC Regulations), including those applicable to systemically important DCOs (e.g. Subpart C of Part 39)
- CME Clearing operates two distinct clearing services that each have their own independent financial safeguards waterfall
  - The Base products financial safeguards waterfall primarily covers the clearing of futures and options on futures and non-IRS cleared swaps
  - The IRS products financial safeguards waterfall primarily covers the clearing of IRS and contracts portfolio margined with IRS

### Consistent with Part 39 of CFTC Regulations, CME Clearing adheres to the CPMI-IOSCO’s *Principles for financial market infrastructures* published in April 2012 (“PFMI”)

- CME Clearing publishes a quantitative disclosures in line with the recommendations laid out under CPMI-IOSCO’s *Public quantitative disclosure standards for central counterparties* (“PQDs”) published in February 2015\*
- CME Clearing’s quantitative disclosure document is updated on a quarterly basis and provides a comprehensive view into key quantitative metrics pertaining to CME Clearing’s clearing services

\* <https://www.cmegroup.com/clearing/cpmi-iosco-reporting.html>

# Q4 2020 Highlights\*

## CME Clearing: Q4 2020 Quantitative Disclosures Call

- **0** Actual or Theoretical Default Fund breaches over the observation period (12 months)
- **0** Margin coverage breaches occurred over the observation period (3 months)
- Achieved margin coverage of **99.90%** in Base and **99.72%** in IRS over the observation period (12 months)
- **0** Collateral haircut breaches during the observation period (3 months)
- **0** Liquidity coverage breaches over the observation period (12 months)
- **99.99%** operational availability across CME Clearing's core systems over the observation period (12 months)

## Financial Resources

**\$206 Billion** Total Amount of Initial Margin

### Total Value of Mutualized Default Resources

**\$8.5 Billion** Prefunded Participant Contributions

**\$250 Million** CME Contributed Capital

**\$13.8 Billion** Participant Commitment Resources

*\*Note, this document uses the terminology used in the PQDs for consistency with the published disclosures, which in some cases differs from the CME Group Exchanges Rules – e.g., CME Group Exchange Rules use the term “Guaranty Fund”, opposed to “Default Fund”.*

# Review of Key PQDs

# Mutualized Default Fund Resources

CME Clearing: Q4 2020 Quantitative Disclosures Call

**\$17.5 billion** total available mutualized resources as of the end of Q4 2020 in the event of a Base Clearing Member default

## Base Financial Safeguards Waterfall

Required Default Fund Contributions	\$4,654,126,568
Designated CME Contribution	\$100,000,000
Assessment Powers	\$12,798,848,061
<b>Total</b>	<b>\$17,452,974,629</b>

**\$4.3 billion** total available mutualized resources as of the end of Q4 2020 in the event of an IRS Clearing Member default

## IRS Financial Safeguards Waterfall

Required Default Fund Contributions	\$3,392,050,420
Designated CME Contribution	\$150,000,000
Assessment Powers	\$976,014,474
<b>Total</b>	<b>\$4,368,064,894</b>

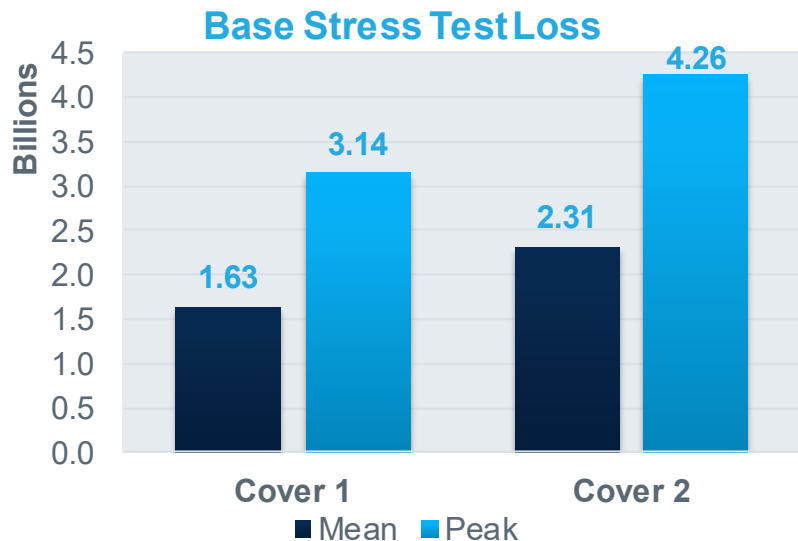
*PQD References: 4.1.1, 4.1.4, and 4.1.8*



# Default Fund Stress Testing Results

CME Clearing: Q4 2020 Quantitative Disclosures Call

Cover 2 standard **met at all times** for Base Default Fund – i.e., estimated stress loss (in excess of initial margin) never greater than Base Default Fund



Note, results use a 12 month period.  
PQD References: 4.4.3 and 4.4.7

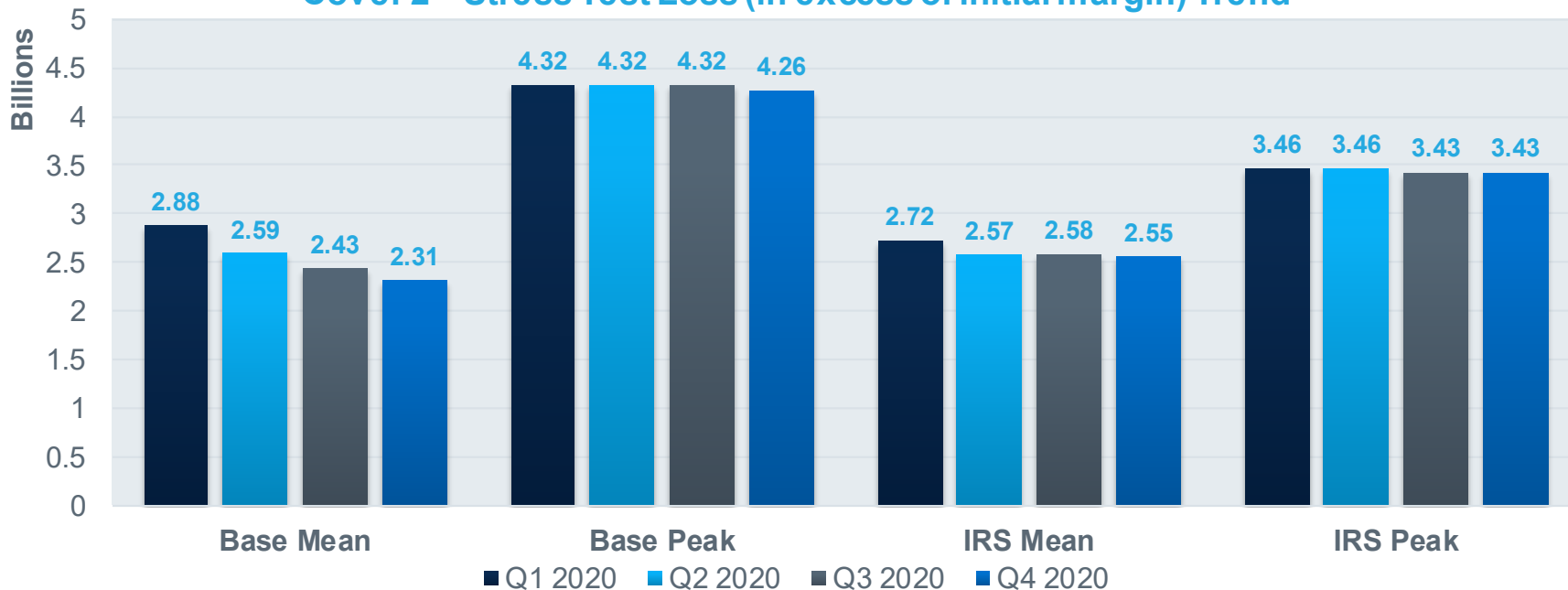
Cover 2 standard **met at all times** for IRS Default Fund – i.e., estimated stress loss (in excess of initial margin) never greater than IRS Default Fund



# Default Fund Stress Testing Results

CME Clearing: Q4 2020 Quantitative Disclosures Call

## Cover 2 – Stress Test Loss (in excess of initial margin) Trend



Note, results use a 12 month period.

PQD References: 4.4.3 and 4.4.7

# Initial Margin Required

CME Clearing: Q4 2020 Quantitative Disclosures Call

**\$152 billion** total initial margin required as of the end of Q4 2020

Base Products		
	Q3 2020	Q4 2020
House – Net	\$21,672,600,612	\$24,852,919,355
Client – Gross*	\$135,500,623,467	\$127,419,826,172
<b>Total</b>	<b>\$157,173,224,079</b>	<b>\$152,272,745,527</b>

\*All client margins are required on a gross basis – i.e., client net margining is not permitted.

**\$37.6 billion** total initial margin required as of the end of Q4 2020

IRS Products		
	Q3 2020	Q4 2020
House – Net	\$9,365,934,120	\$9,100,845,844
Client – Gross*	\$29,572,984,266	\$28,546,761,009
<b>Total</b>	<b>\$38,938,918,386</b>	<b>\$37,647,606,853</b>

\*All client margins are required on a gross basis – i.e., client net margining is not permitted.

PQD Reference: 6.1.1

# Initial Margin Held

CME Clearing: Q4 2020 Quantitative Disclosures Call

**\$164 billion** total initial margin held as of the end of Q4 2020

Base Products		
	Q3 2020	Q4 2020
House – Net	\$24,387,376,979	\$27,225,059,627
Client – Gross	\$146,605,406,740	\$137,070,884,762
<b>Total</b>	<b>\$170,992,783,719</b>	<b>\$164,295,944,389</b>

**\$41 billion** total initial margin held as of the end of Q4 2020

IRS Products		
	Q3 2020	Q4 2020
House – Net	\$9,979,835,909	\$9,846,309,487
Client – Gross	\$32,951,775,703	\$31,543,653,646
<b>Total</b>	<b>\$42,931,611,612</b>	<b>\$41,389,963,133</b>

*Note, figures provided reflect post-haircut amounts.  
PQD Reference: 6.2.15*

# Excess Margin Held

CME Clearing: Q4 2020 Quantitative Disclosures Call

**\$12 billion** excess margin held for Base products as of the end of Q4 2020

## Base Excess Margin Held



**\$3.7 billion** excess margin held for IRS products as of the end of Q4 2020

## IRS Excess Margin Held

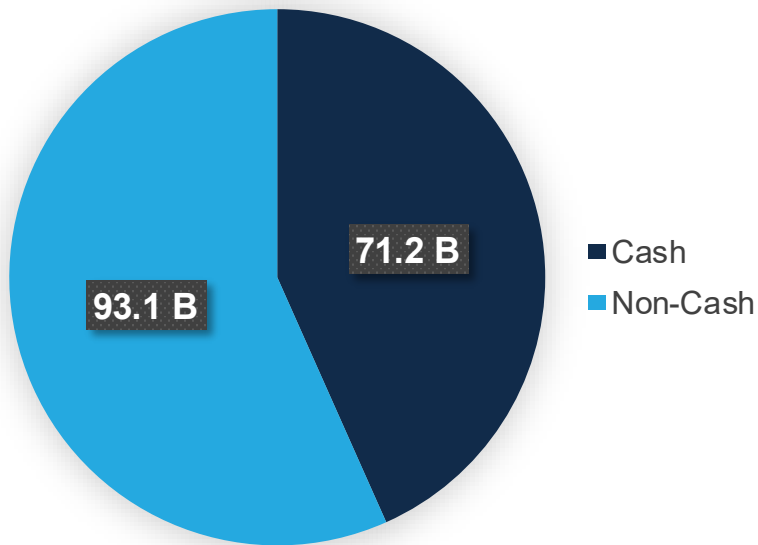


Note, excess margin held is the margin held above the required amount.  
PQD References: 6.1.1 and 6.2.15

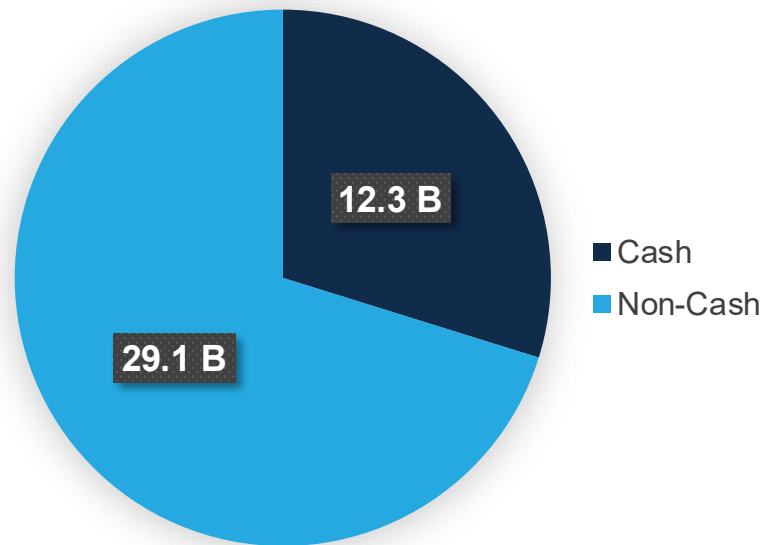
# Collateral Composition of Initial Margin – Cash vs Non-Cash

CME Clearing: Q4 2020 Quantitative Disclosures Call

## Base



## IRS

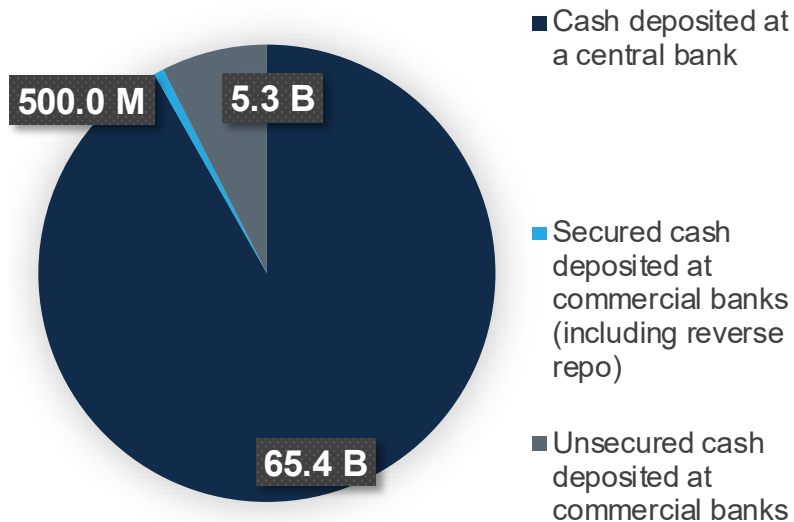


Note, figures provided reflect post-haircut amounts as of the end of Q4 2020.  
PQD References: 6.2.1 thru 6.2.14

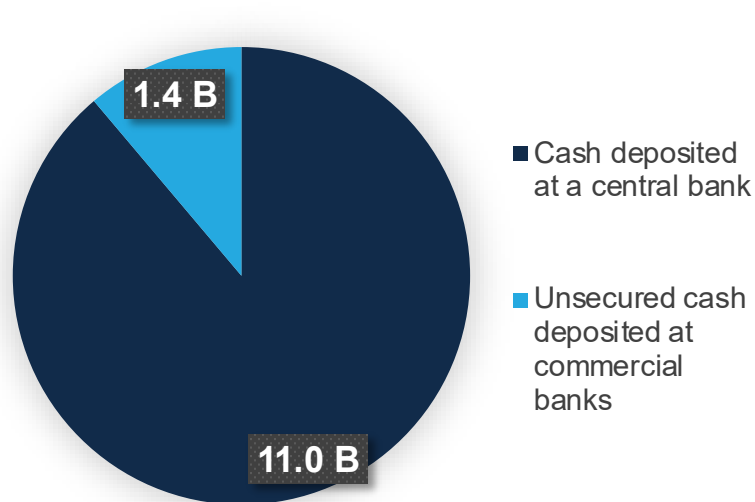
# Collateral Composition of Initial Margin – Cash Breakdown

CME Clearing: Q4 2020 Quantitative Disclosures Call

## Base



## IRS

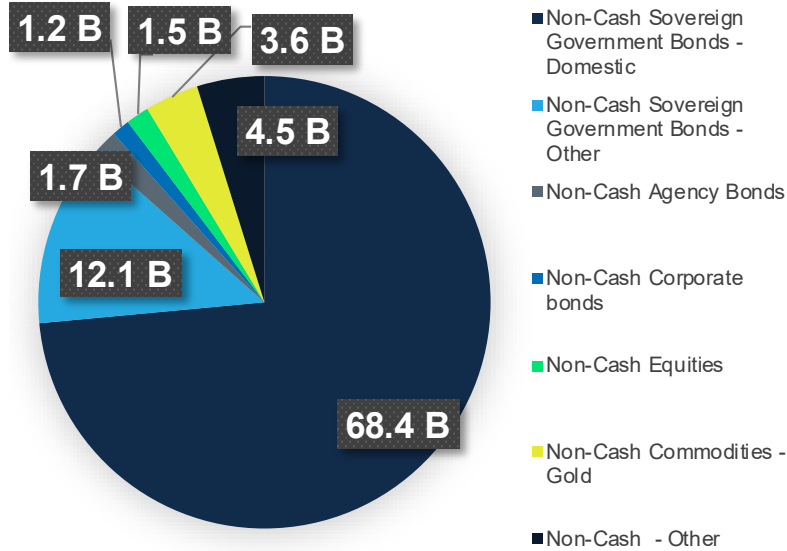


Note, figures provided reflect post-haircut amounts as of the end of Q4 2020.  
PQD References: 6.2.1 thru 6.2.14

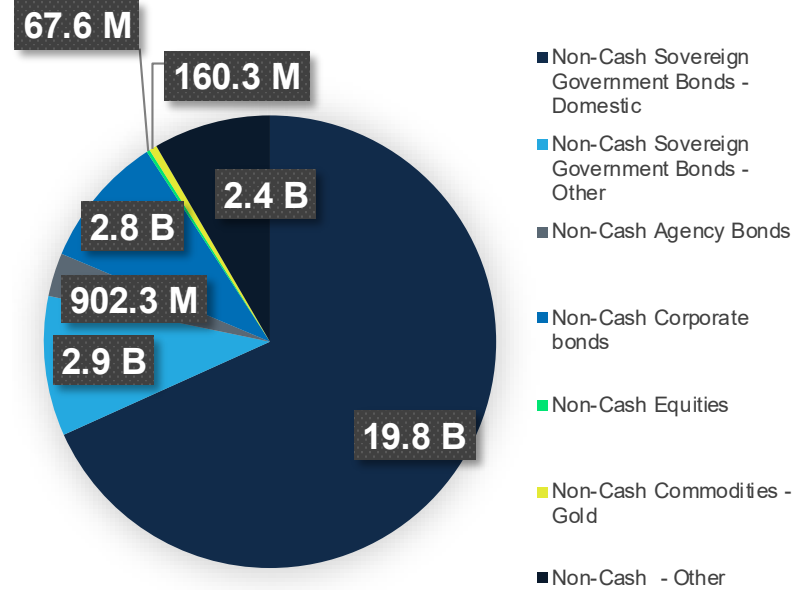
# Collateral Composition of Initial Margin – Non-Cash Breakdown

CME Clearing: Q4 2020 Quantitative Disclosures Call

Base



IRS



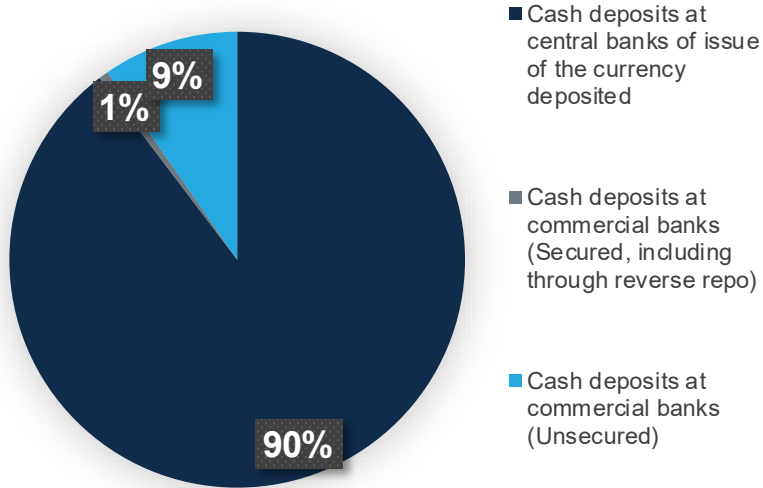
Note, figures provided reflect post-haircut amounts as of the end of Q4 2020.  
 PQD References: 6.2.1 thru 6.2.14



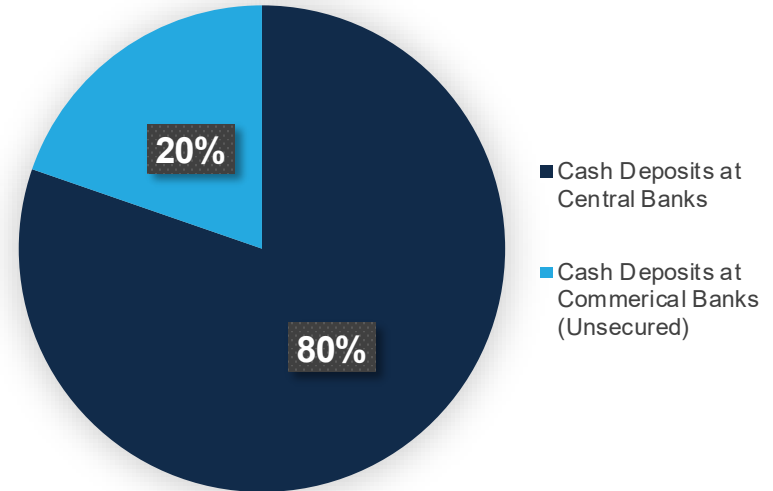
# Total Cash Received from Participants – Held/Deposited/Invested

CME Clearing: Q4 2020 Quantitative Disclosures Call

## Base



## IRS



Note, total cash received includes both initial margin and guaranty fund deposits.  
PQD References: 16.2.1 thru 16.2.14

# Margin Backtesting Results

CME Clearing: Q4 2020 Quantitative Disclosures Call

No margin breaches occurred during Q4 2020

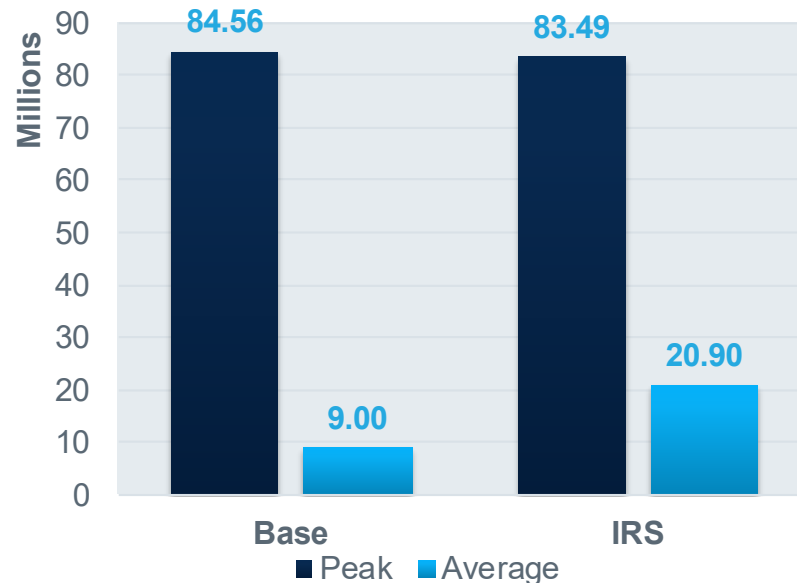
## Backtesting Results\*

	Base	IRS
# of Margin Breaches	24	28
Achieved Coverage Level	99.90%	99.72%

\*Reporting period captures the previous 12 months. Margin breaches disclosed in Q4 2020 occurred during Q1 2020.

PQD References: 6.5.1.1 thru 6.5.5

## Uncovered Exposure\*

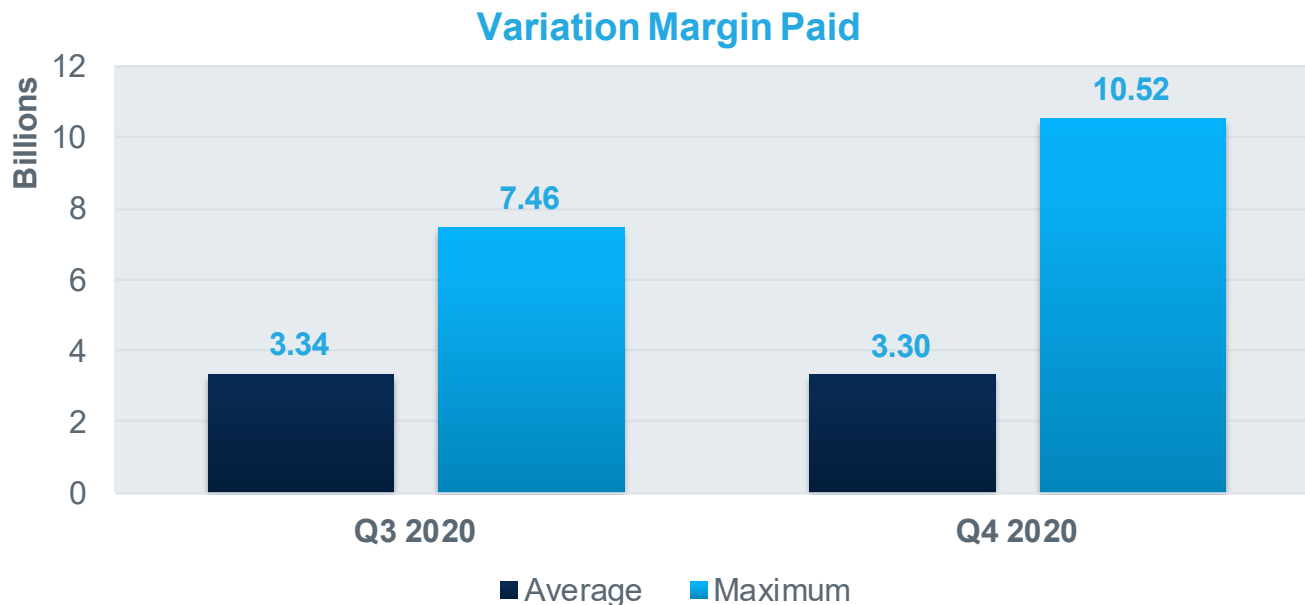


\* Reporting period captures the previous 12 months. Margin breaches occurred in Q1 2020.

# Settlement Variation Flows

CME Clearing: Q4 2020 Quantitative Disclosures Call

Average variation paid decreased by 1% and maximum variation paid increased by 41% in Q4 2020



*Note, figures include any intraday variation payments. Settlement variation is exchanged on a net basis.  
PQD References: 6.6.1 and 6.7.1*

# Maximum Initial Margin Call Across All Clearing Members

CME Clearing: Q4 2020 Quantitative Disclosures Call

## Maximum Total Initial Margin Call



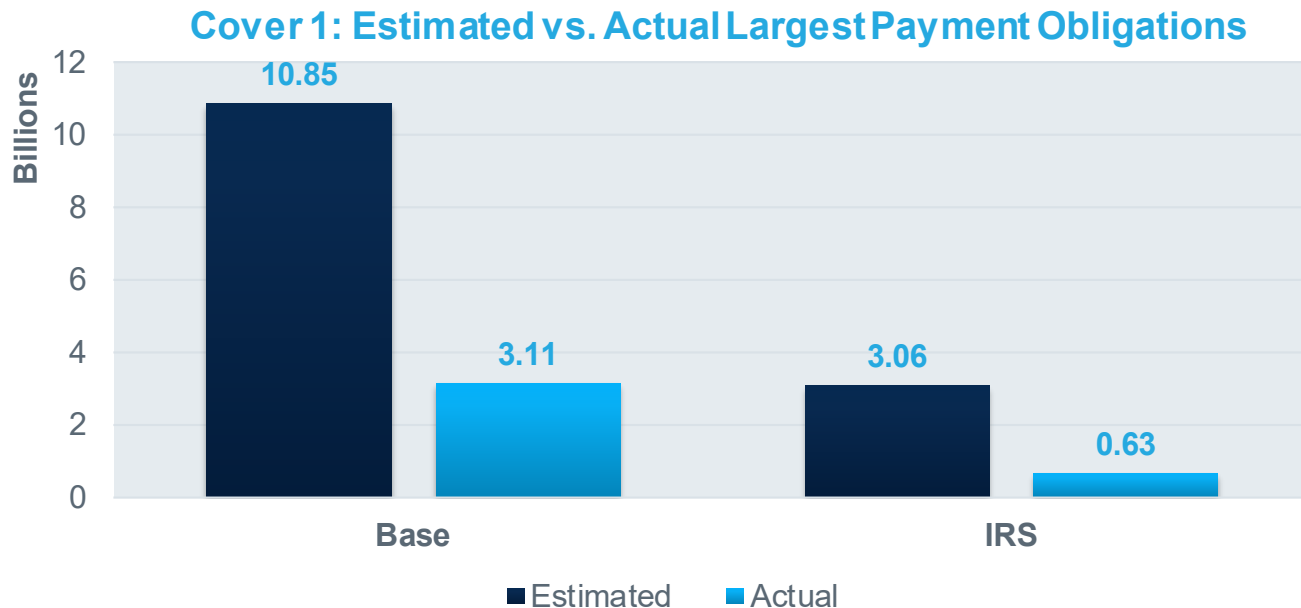
*Note, figures include any intraday initial margin payments. Customer initial margin is collected on a gross basis.*

*PQD Reference: 6.8.1*

# Liquidity Stress Testing Results

CME Clearing: Q4 2020 Quantitative Disclosures Call

There were no theoretical or actual liquidity coverage breaches during Q4 2020



*Note, largest estimated payment obligations are reported over the reporting quarter, whereas the largest actual payment obligations are reported over the previous 12 months.  
PQD References: 7.3.1 and 7.3.4*

# Size and Composition of Qualifying Liquidity Resources

CME Clearing: Q4 2020 Quantitative Disclosures Call

<b>Composition of Qualifying Liquidity Resources</b> <i>– as of the end of Q4 2020</i>	<b>Amount</b>
Cash Deposited at Central Bank of Issue	76,310,286,826
Cash Deposited at other Central Banks	0
Cash Deposited at Commercial Banks (Secured) including Reverse Repo	500,000,000
Cash Deposited at Commercial Banks (Unsecured)	9,248,930,283
Secured Committed Lines of Credit (including FX Swaps and Committed Repo)	7,500,000,000
Unsecured Committed Lines of Credit	0
Highly Marketable Collateral and Convertible into Cash with Prearranged and Highly Reliable Funding Arrangements	74,265,325,686
<b>Total</b>	<b>167,824,542,795</b>

*PQD References: 7.1.2 thru 7.1.8*

# Operational Availability

## CME Clearing: Q4 2020 Quantitative Disclosures Call

CME Clearing had 99.99% operational availability across its core systems over the previous 12 months

- There were 2 failures affecting the core systems over the previous 12 months
- CME Clearing's recovery time objective is **two hours**

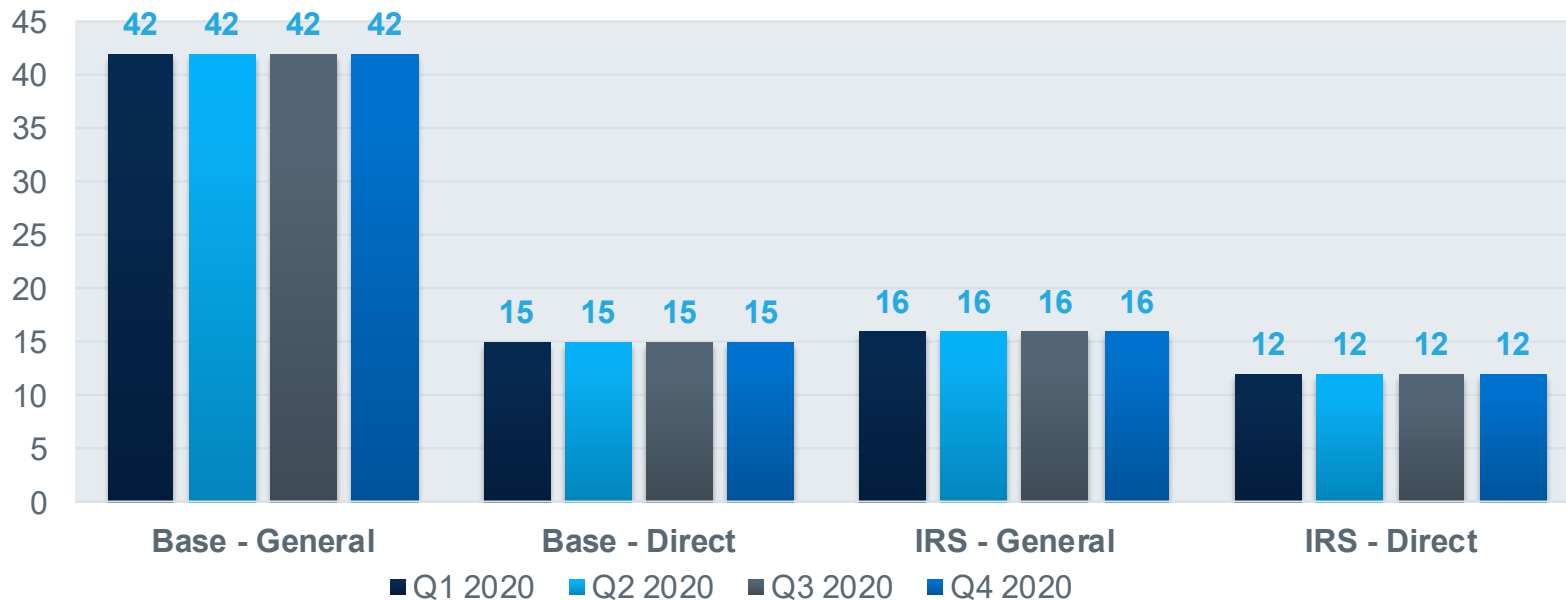
Core Systems		
	Target Availability	Actual Availability
Ability to accept executed trades for clearing	99.00%	99.99%
Ability to view and manage market and credit risks	99.00%	100%
Ability to process and manage settlement and collateral	99.00%	100%

*PQD References: 17.1.1 and 17.2.1*

# Number of Clearing Members

CME Clearing: Q4 2020 Quantitative Disclosures Call

Clearing membership continues to remain stable at CME Clearing



Note, "Direct" references Clearing Members that only clear house business and "General" references Clearing Members that can also clear for clients.  
PQD References: 18.1.1.1 and 18.1.1.2

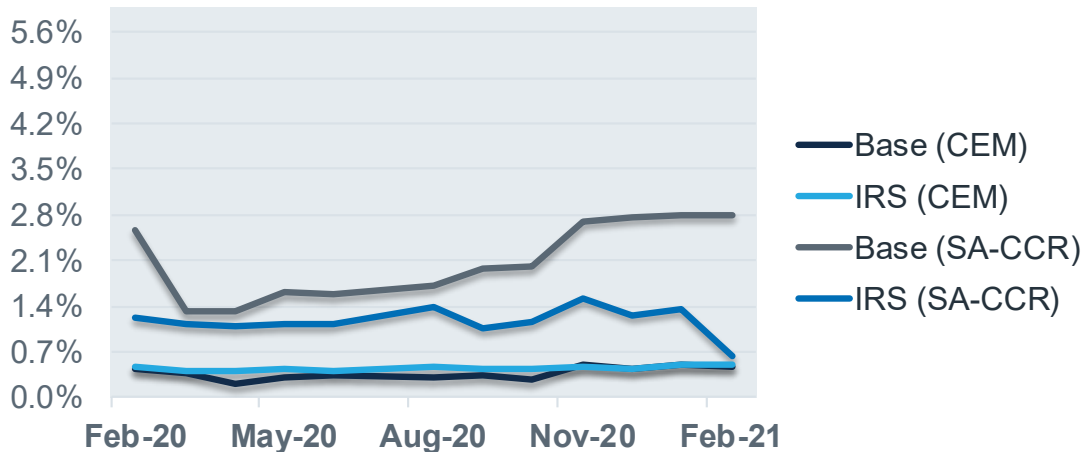


# Additional Information

# C-Factor

## CME Clearing: Q4 2020 Quantitative Disclosures Call

- As a QCCP\*, CME Clearing is required to make available or calculate required data for purposes of calculating capital requirements for default fund (i.e., Guaranty Fund) exposures under the Basel III capital framework
- CME Clearing computes the risk weight or 'c-factor' value bank or bank-affiliated clearing members may utilize in determining the amount of regulatory capital to be held against default fund contributions



\*Note, further information pertaining to QCCP and c-factor calculations can be found at: <https://www.cmegroup.com/clearing/c-factor-disclosures.html>.

# Futures & Options Margining Practices

## CME Clearing: Q4 2020 Quantitative Disclosures Call

### Anti-procyclicality Measures

- CME Clearing's margin methodology for futures and options are designed to account for a variety of market conditions and to avoid procyclical changes in performance bond (i.e., initial margin in the PQDs) requirements
- Anti-procyclical practices, include, but are not limited to:
  - Volatility floors
  - Benchmark margin buffers
  - Implied volatility
  - Seasonality parameters
  - Proactive changes in anticipation of market events

### Lookback Periods

- Weighted lookback periods dependent on asset class
- SPAN leverages varying weighted lookback periods dependent on the asset class. Weights may be applied to observations across three-, six-, and twelve-months and four-

and ten-years, depending on the product, with a maximum lookback of at least twelve months being included for all products

### Add-Ons

- Due to the unique risks of some portfolios, they may be subject to add-ons:
  - Concentration add-on is incurred by a clearing member given the size of its potential market exposures in a stress event relative to its available financial resources or the overall market
  - Stress shortfall margin add-on is incurred by a clearing member if its stress shortfall is greater than a predefined threshold

**For further information, please visit:**

<https://www.cmegroup.com/clearing/risk-management/futures-and-options-margin-model.html>

# IRS Margining Practices

## CME Clearing: Q4 2020 Quantitative Disclosures Call

### Anti-procyclicality Measures

- CME Clearing's margin methodology for IRS products are designed to account for a variety of market conditions and to avoid procyclical changes in performance bond requirements
- Anti-procyclical practices embedded into the historical value-at-risk ("HVaR") and unscaled components of its margin methodology, include, but not limited to:
  - Weighted sum of filtered HVaR and unscaled component
  - Re-scaling volatility adjusted historical returns based on volatility floor
  - Proactive changes in anticipation of market events

### Lookback Periods

- **Filtered HVaR Component** uses at least 5-year rolling lookback period and adjusts the 5-day historical returns based on appropriate forecasts of short-term volatility – Exponentially Weighted Moving Average
- **Unscaled Component** utilizes historical scenarios from

longer lookback periods, in addition to the rolling 5-year lookback

- **Event Risk Component** captures anticipated moves in the market arising from event-specific risks

### Add-Ons

- Portfolios of IRS products that present significant liquidation risk within the margin period of risk are subject to the liquidity/concentration add-on
  - For medium to large portfolios that could pose significant liquidity risk, the add-on prudently accounts for the cost of hedging and auctioning a directional or hedged IRS products' portfolio under a stressed market environment

**For further information, please visit:**

<https://www.cmegroup.com/education/files/cleared-otc-irs-margin-methodology.pdf>

# Thank you

For questions regarding the CME Clearing's CPMI-IOSCO  
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[CMEPFMIResponse@cmegroup.com](mailto:CMEPFMIResponse@cmegroup.com)

