March Volatility and Clearing

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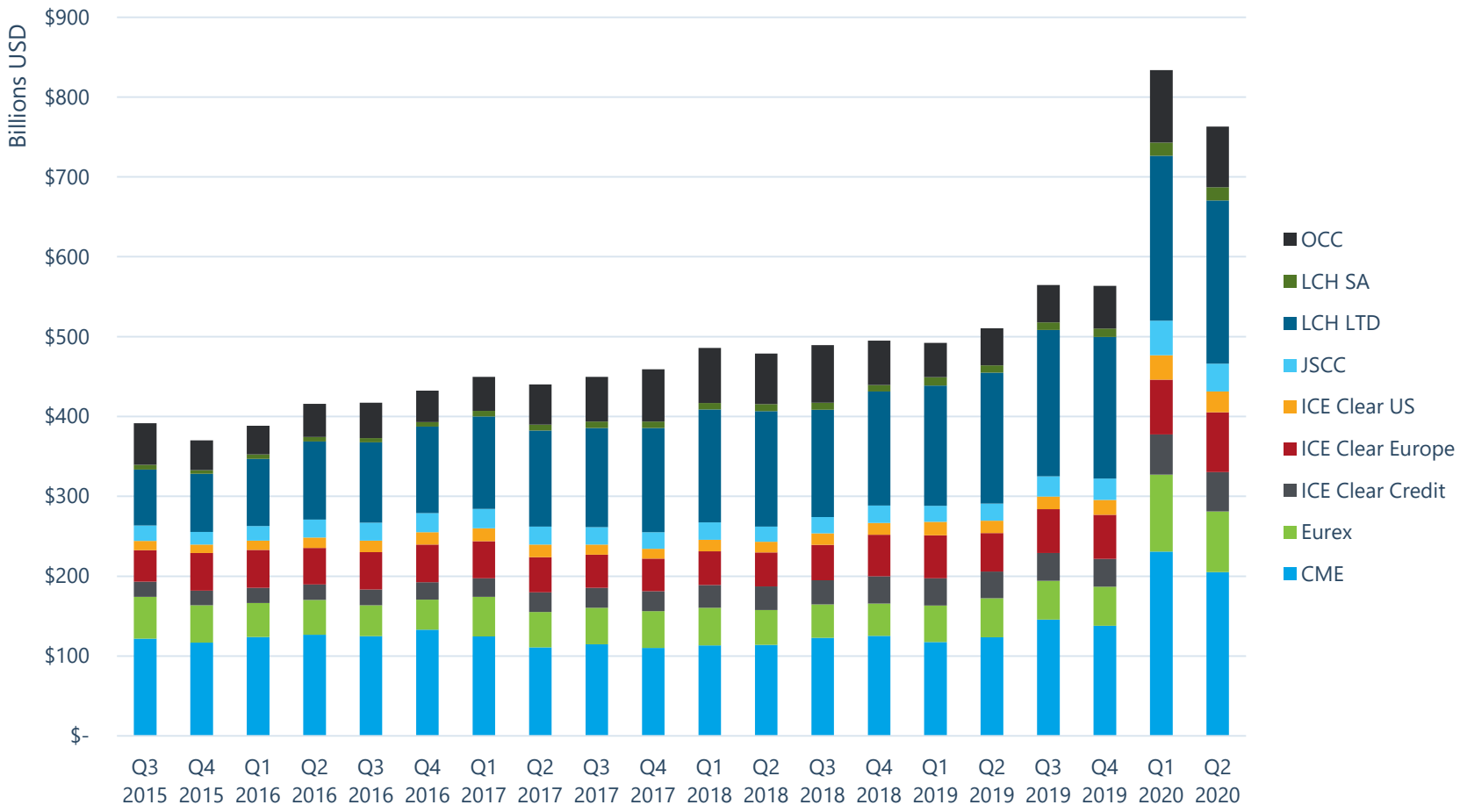
Overview

- The market turmoil during the spring of 2020 offered a powerful real-world stress test of the financial markets.
- The cleared derivatives markets withstood the test, proving that post-crisis reforms provided stability.
- Central clearing ensured mitigation of credit risk and improved counterparty risk management.
- However, this episode provides an opportunity to review the clearing system and consider the potential for improvements.
- FIA issued a paper in October reflecting upon lessons learned.
  - The procyclicality of CCP margin requirements contributed to the overall level of stress in financial markets.
  - The steep and rapid increases in CCP initial margin requirements created funding pressures on FCMs and their clients.
  - Unscheduled intraday margin calls made it more difficult for FCMs to forecast their liquidity requirements, adding to the stress.

Overview

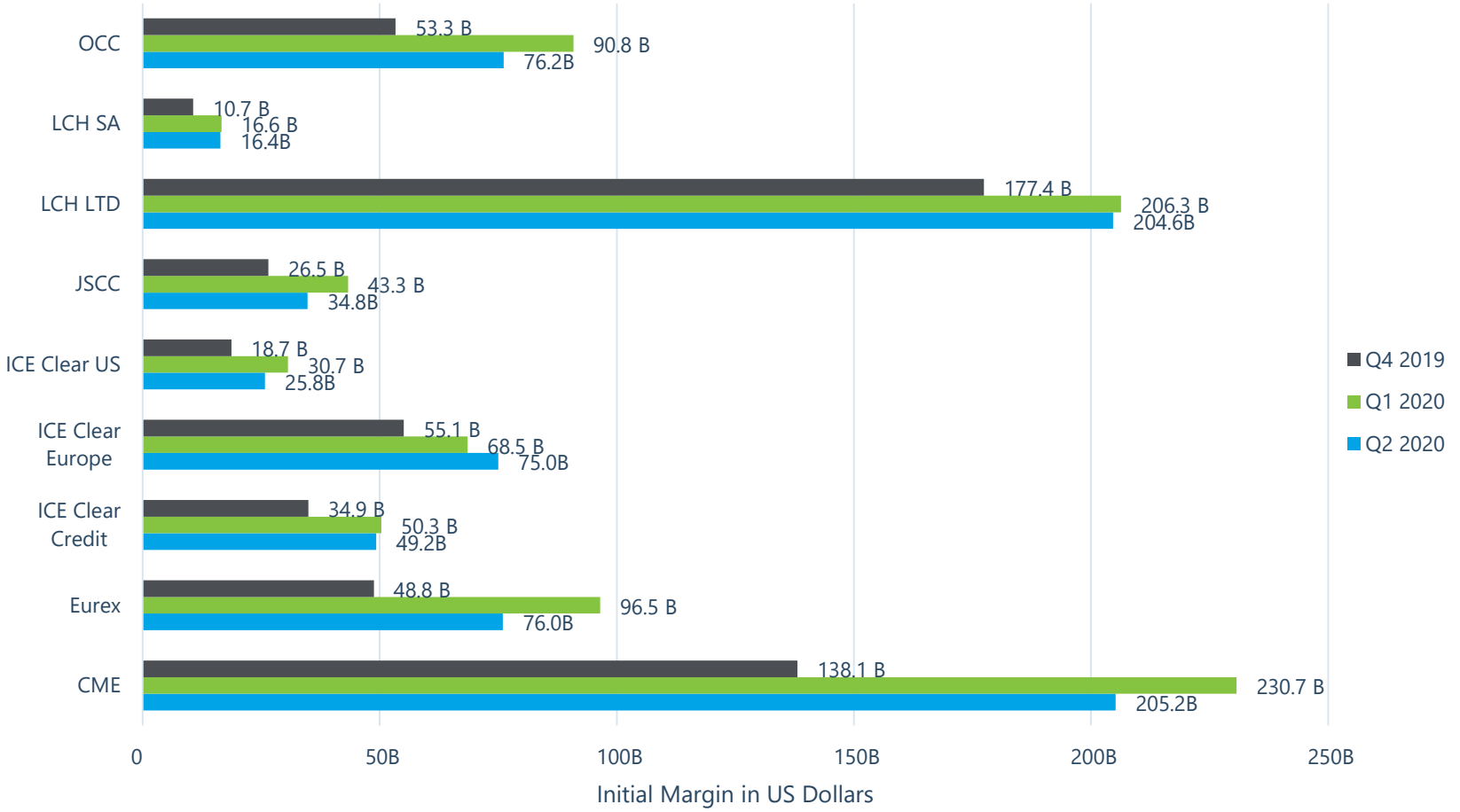
- FIA analyzed quarterly disclosures from nine major CCPs to estimate the impact of the market turmoil on initial margin requirements.
- The aggregate amount of initial margin at these nine CCPs rose from $563.6 billion at year-end to $833.9 billion at the end of the first quarter. In other words, initial margin increased by $270.3 billion, or 48%, during that three-month period.
- Customer funds data published by the CFTC show a similar trend. The total amount of customer collateral in clearing accounts at US FCMs rose by more than $136 billion in March. That increase was more than six times larger than any previous single month increase in the history of the industry.
- Although trading volume increased to record levels during this period, this was not the main driver for the increases in initial margin and customer funds. The total level of open interest, which measures the number of outstanding contracts, remained roughly constant through this period.

Initial Margin Held at Nine Major CCPs Reached $834 Billion in the First Quarter, an Increase of $270 Billion from Q4 2019



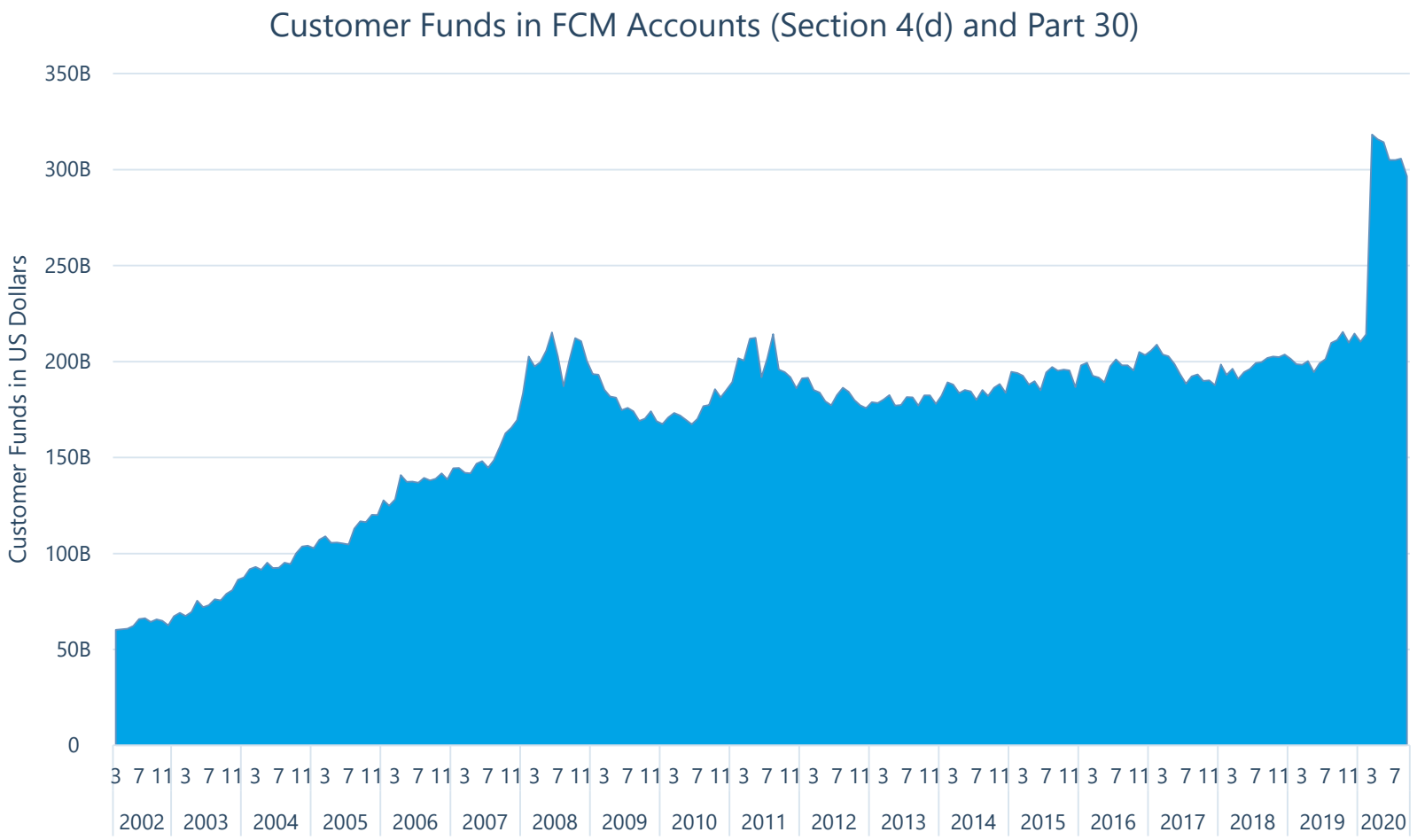
Source: FIA CCP Tracker, Public Quantitative Disclosures
Note: LCH LTD and LCH SA only include margin for cleared derivatives

Initial Margin Levels Increased Dramatically at Some but Not All CCPs, Reflecting Differences in Asset Classes, Contract Types and Margin Models



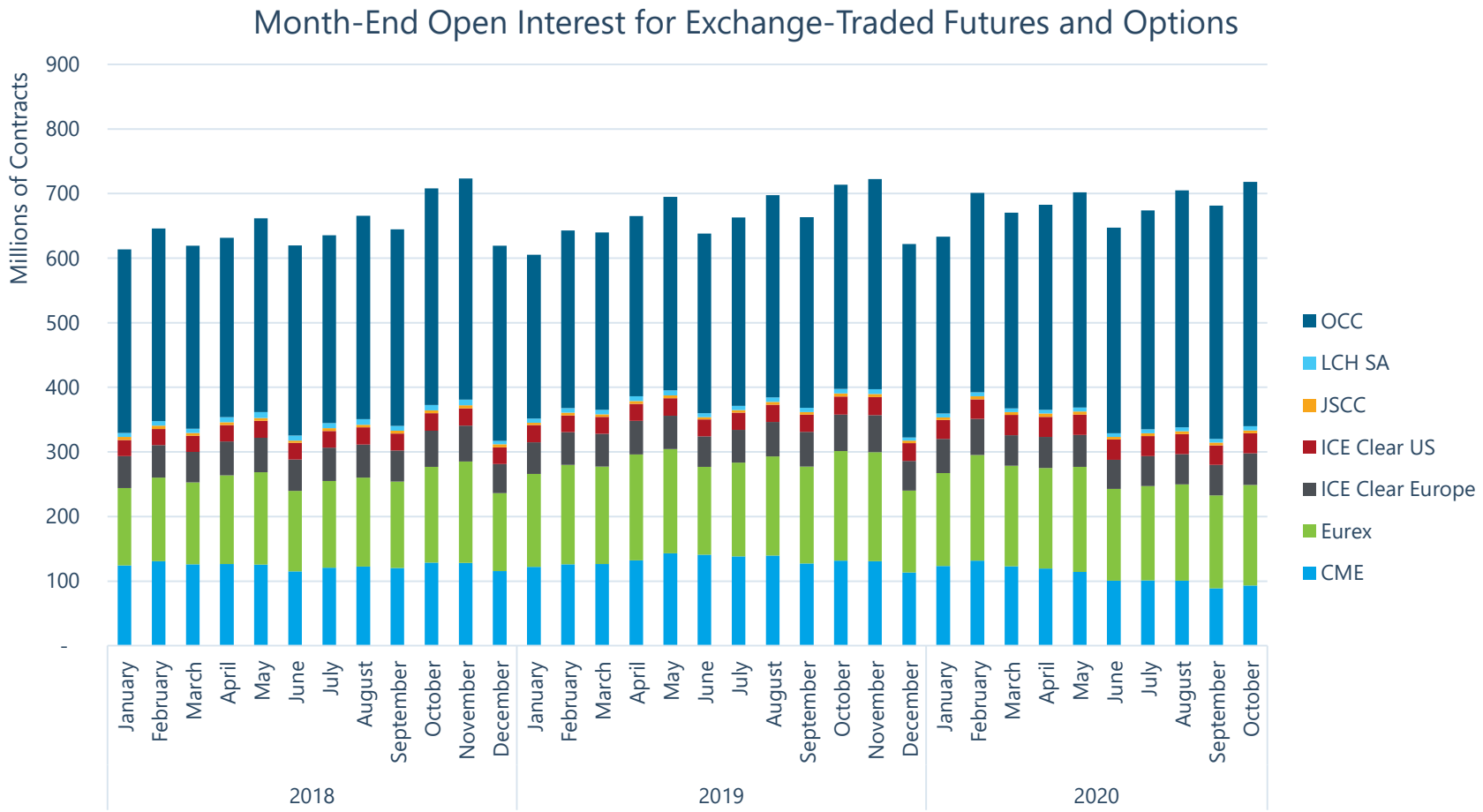
Source: FIA CCP Tracker, Public Quantitative Disclosures
Note: LCH LTD and LCH SA only include margin for cleared derivatives

Customer Funds in US Futures Accounts Rose by More than $100 Billion in March, the Largest Single Month Increase Ever



Source: FIA FCM Tracker, Commodity Futures Trading Commission

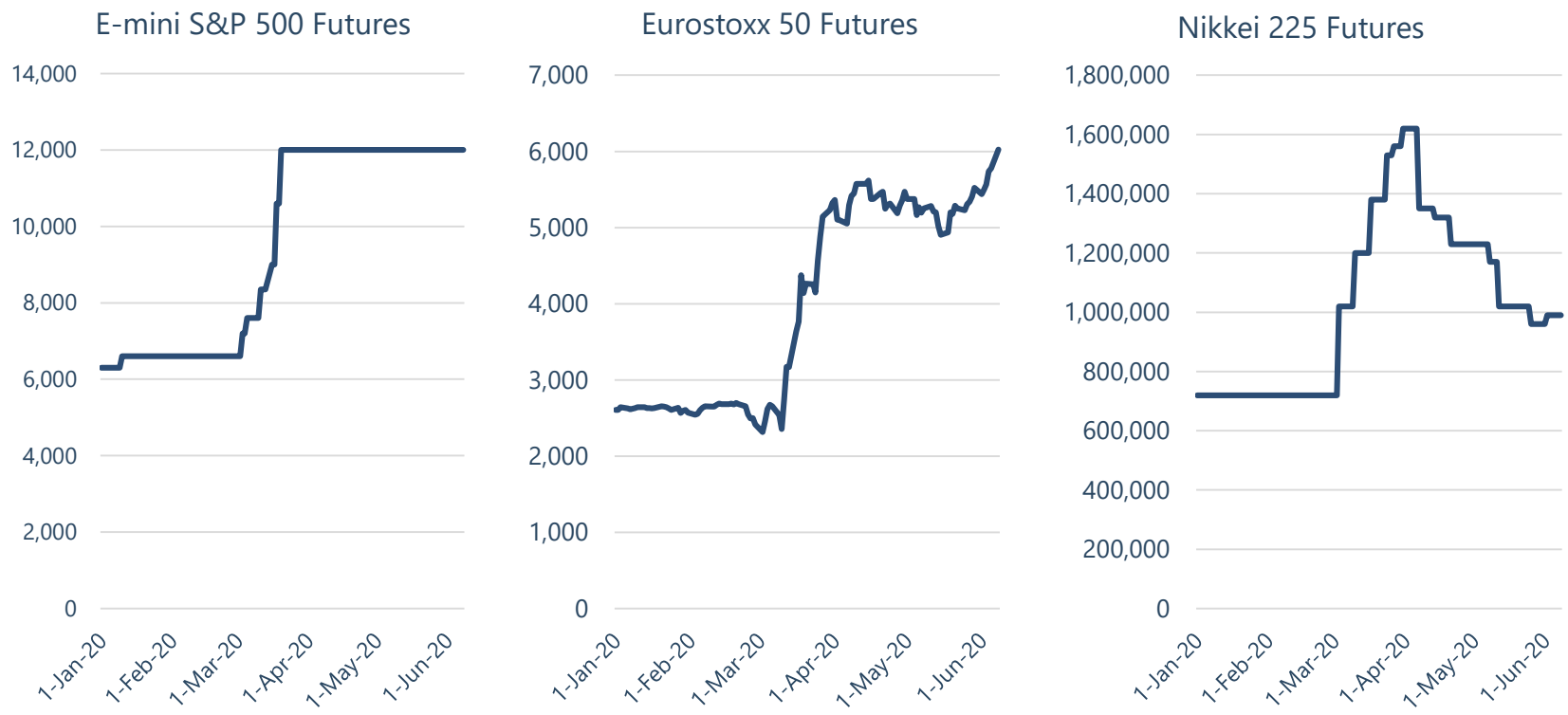
Was the Increase in Initial Margin Driven by Increases in the Level of Trading? Open Interest Data Show the Answer Is No



Source: FIA ETD Monthly Volume and Open Interest Report

Spike in Margin Requirements: For Equity Index Futures …

Per contract margin requirements for three benchmark equity index futures, daily changes from Jan 1 to Jun 8, 2020

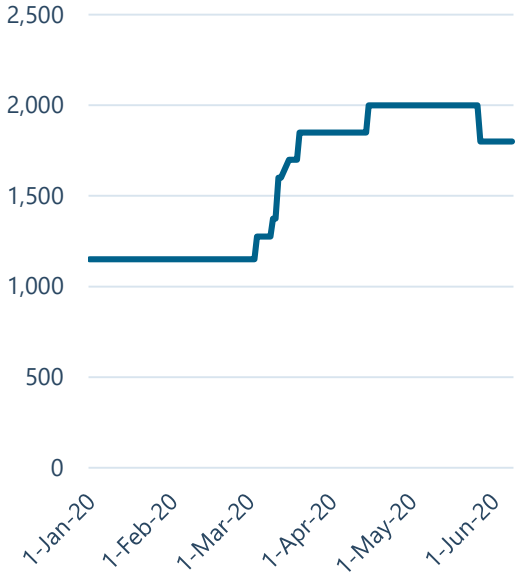


Source: data published on CCP websites and provided by FIA member firms

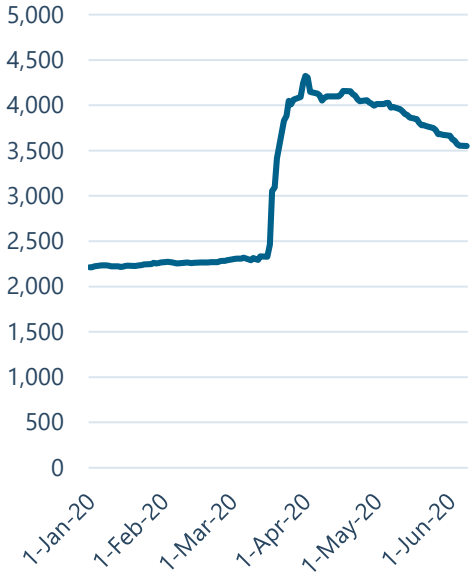
… Interest Rate Futures …

Per contract margin requirements for three benchmark interest rate futures, daily changes from Jan 1 to Jun 8, 2020

US 10-Year Treasury Futures, CBOT



Euro Bund Futures, Eurex



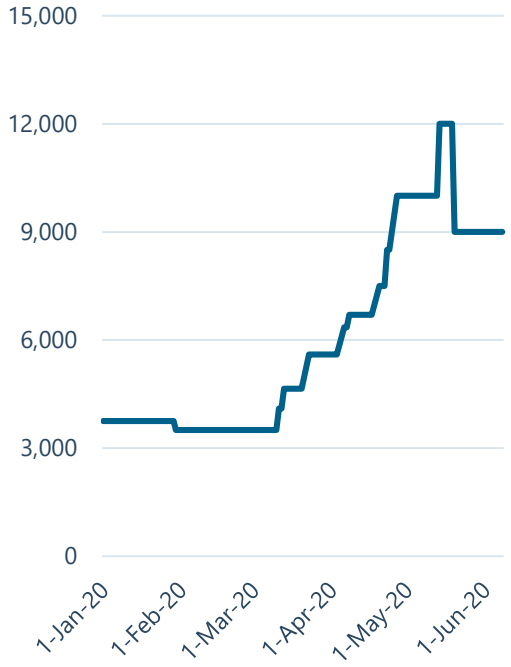
JGB Futures, JPX

Source: data published on CCP websites and provided by FIA member firms

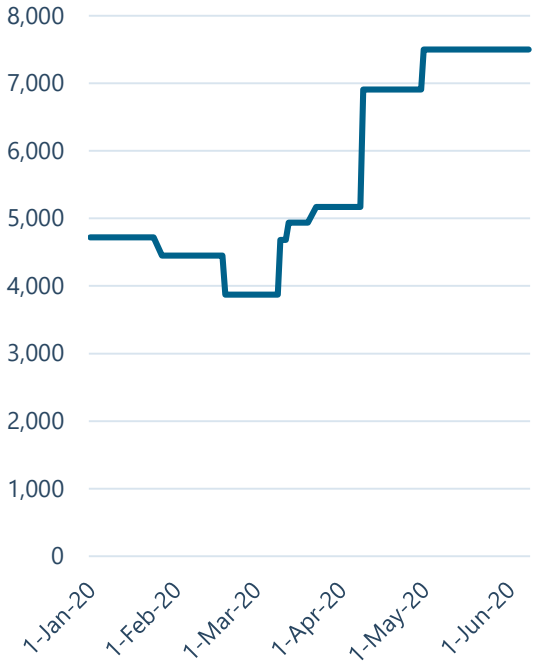
… and Commodity Futures

Per contract margin requirements for three benchmark commodity futures, daily changes from Jan 1 to Jun 8, 2020

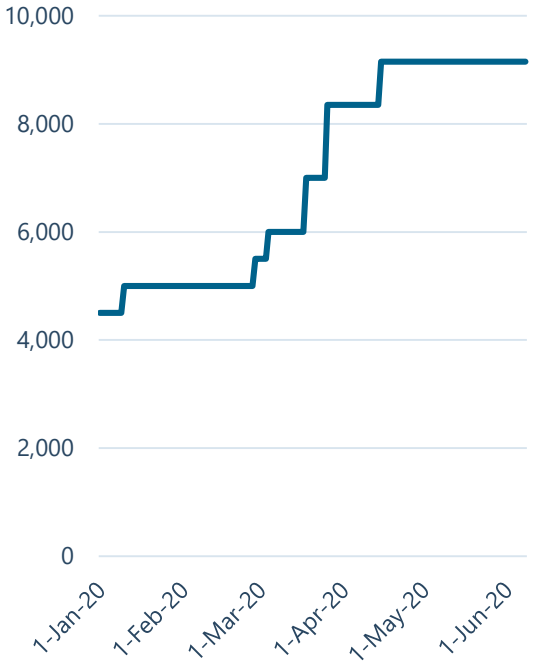
WTI Crude Oil Futures, Nymex



Brent Crude Oil Futures, ICE Futures Europe



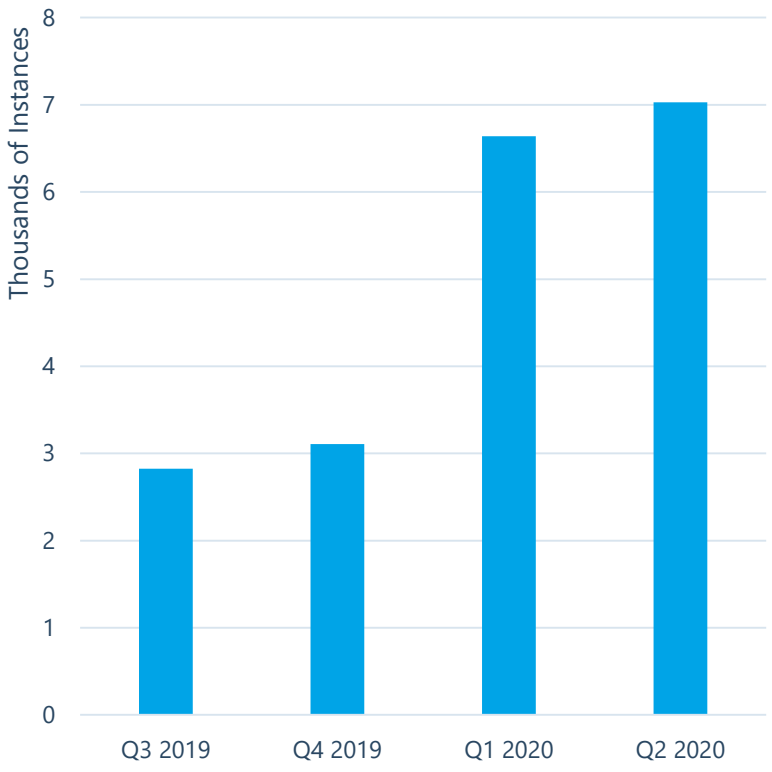
Gold Futures, Comex



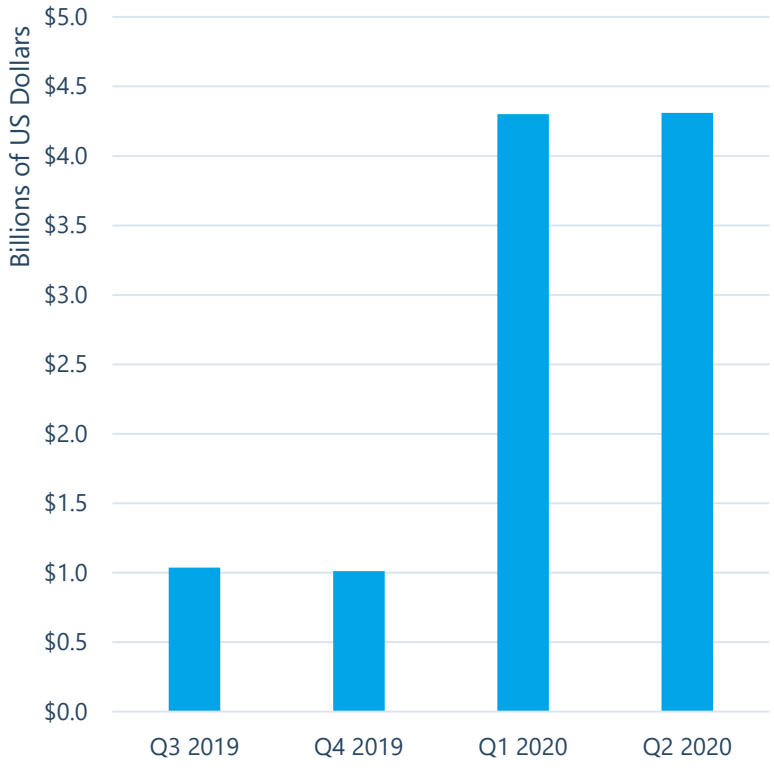
Source: data published on CCP websites and provided by FIA member firms

The Number and Size of Margin Breaches Increased Dramatically in Q1 as Mark-to-Market Changes in Values Exceeded Initial Margin

Number of Margin Breaches More Than Doubled During Q1

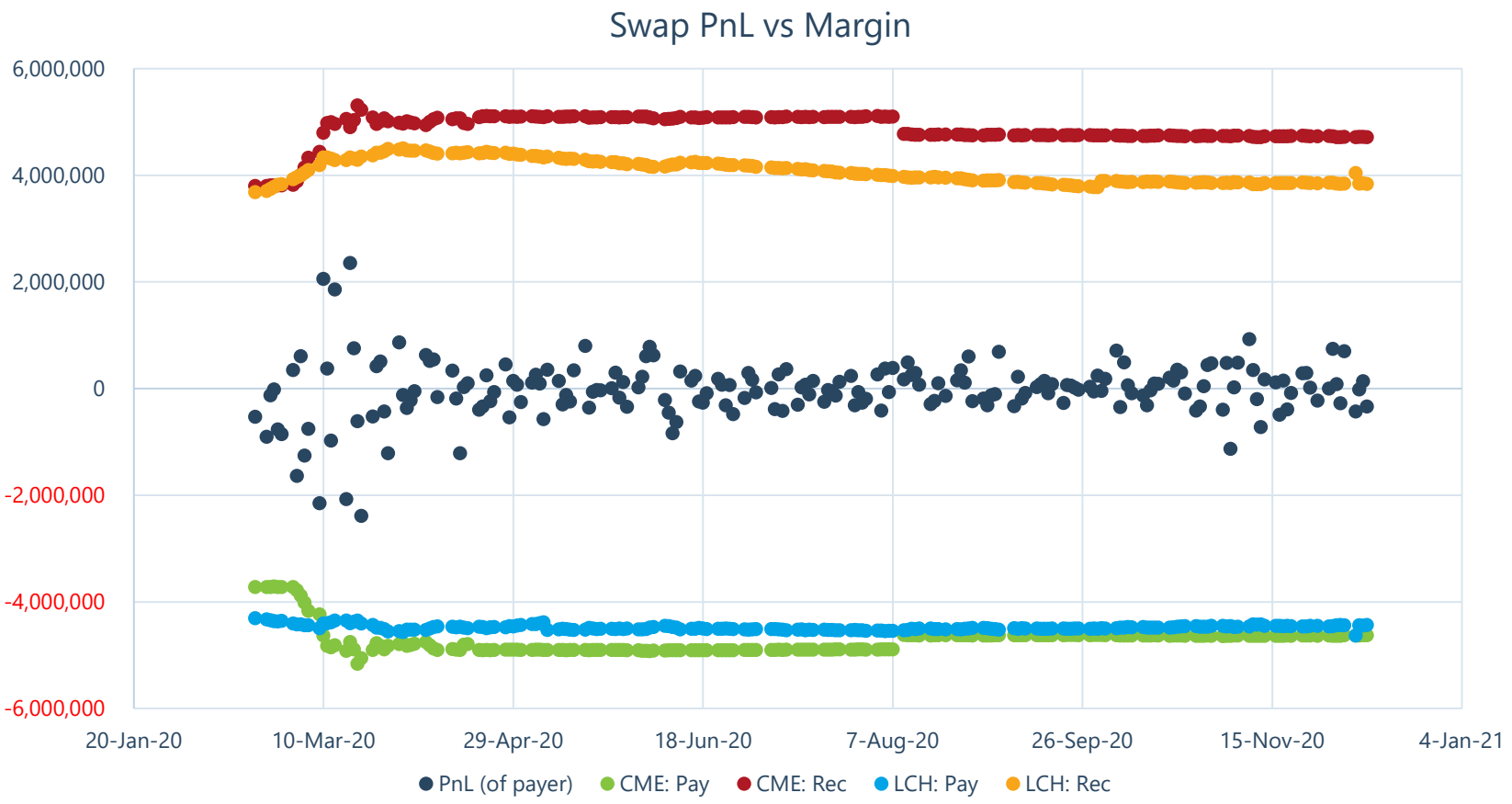


Average Size of Margin Breaches Increased by Four Times During Q1



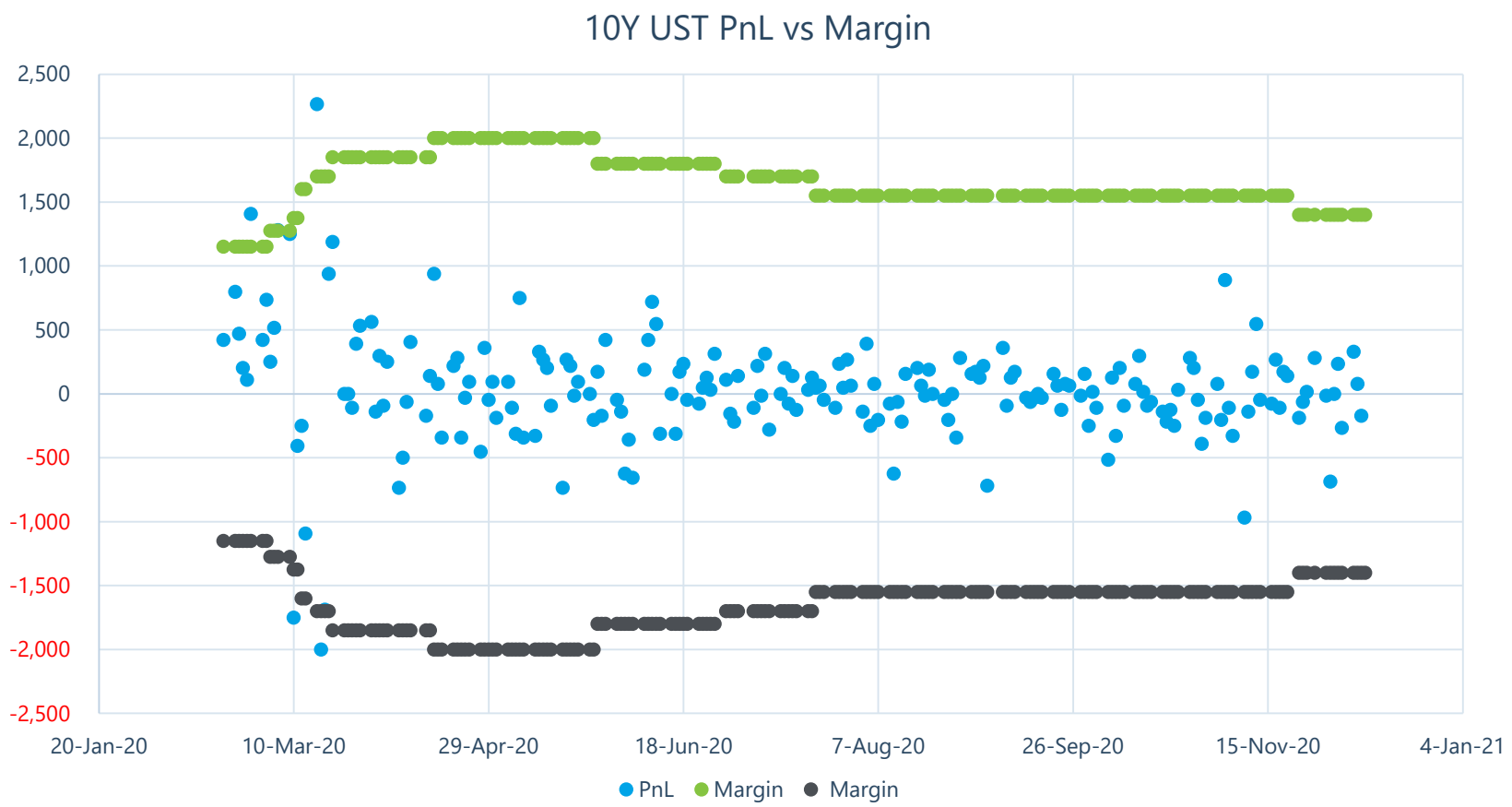
Source: FIA CCP Tracker, Public Quantitative Disclosures
Note: Based on disclosures covering clearing services operated by nine CCPs:
CME, Eurex, ICE Clear US, ICE Clear Credit, ICE Clear Europe, JSCC, LCH LTD, LCH SA, OCC

Comparing OTC and ETD: 10Y US Interest Rate Swaps



Source: J.P. Morgan

Comparing OTC and ETD: 10Y US Treasury Futures



Source: J.P. Morgan

Rate of Change

		Margin Rate						Margin Rate Changes		Margin Rate Changes		1-Day Margin Changes	
		Global Financial Crisis			Covid-19 Crisis			Global Financial Crisis		Covid-19 Crisis		Covid-19 Crisis	
CCP	Contract	Start 15 Sep*	Peak	End 1Q09*	Start 21 Feb	Peak	End 30 Sep	Change: Start to Peak	Change: Peak to End	Change: Start to Peak	Change: Peak to End	Margin Rate Change	Margin Level Change
CME	Crude WTI Oil Futures	9.1%	21.4%	10.8%	6.5%	81.0%	14.0%	134%	-49%	1145%	-83%	68%	20%
	Gold Futures	4.9%	7.7%	4.4%	3.1%	5.5%	4.9%	56%	-43%	77%	-10%	19%	21%
	Nikkei 225 (Dollar)	6.5%	14.3%	12.2%	4.3%	10.4%	6.4%	121%	-15%	139%	-38%	12%	18%
	S&P 500 Index**	5.7%	14.6%	11.5%	3.9%	10.8%	7.2%	156%	-22%	176%	-33%	14%	18%
	30-Day Federal Funds	0.2%	0.2%	0.2%	0.1%	0.2%	0.1%	0%	-1%	123%	-70%	35%	35%
	Eurodollar	0.3%	0.5%	0.4%	0.1%	0.2%	0.1%	50%	-21%	58%	-53%	27%	27%
	2-Year U.S. Treasury Note	0.4%	0.8%	0.6%	0.2%	0.3%	0.2%	89%	-25%	54%	-52%	14%	15%
	10-Year U.S. Treasury Note	1.0%	2.0%	1.6%	0.9%	1.4%	1.1%	92%	-18%	65%	-23%	17%	16%
	U.S. Treasury Bond	1.3%	2.8%	2.8%	1.7%	3.8%	2.7%	110%	-1%	177%	-30%	31%	32%
	EUR/USD Futures	1.5%	3.7%	3.3%	1.3%	1.7%	1.7%	144%	-12%	32%	-1%	10%	12%
	GBP/USD Futures	1.4%	3.0%	2.7%	3.0%	3.8%	3.7%	122%	-9%	28%	-1%	13%	13%
	JPY/USD Futures	1.7%	3.6%	2.8%	1.9%	3.6%	3.0%	108%	-22%	91%	-15%	20%	20%
Eurex	EURO STOXX 50 Index	7.6%	15.0%	NA	6.9%	19.7%	13.0%	97%	NA	185%	-34%	19%	14%
OCC	VIX Index	12.2%	22.0%	15.1%	49.8%	57.4%	42.0%	81%	-31%	15%	-27%	32%	24%
JSCC	Nikkei 225 Index	3.9%	16.8%	13.5%	3.1%	9.2%	5.1%	325%	-19%	199%	-45%	48%	42%
	Topix Index	3.8%	13.5%	11.6%	2.9%	8.8%	4.6%	252%	-14%	202%	-47%	50%	45%
	Japanese Govt 10 Year Bond	1.0%	1.1%	0.9%	0.3%	0.8%	0.7%	5%	-17%	144%	-15%	55%	55%
ASX	SPI 200 Index	8.1%	13.3%	8.8%	4.2%	10.0%	8.5%	64%	-33%	135%	-15%	41%	30%
	10 Year Treasury Bond	1.5%	2.6%	2.6%	2.2%	2.3%	2.1%	74%	-1%	4%	-5%	2%	0%
	3 Year Treasury Bond	0.8%	1.1%	0.8%	0.7%	0.7%	0.7%	41%	-21%	0%	-1%	0%	0%
						Average		106%	-20%	152%	-30%	26%	23%
						Avg excl. WTI		105%	-18%	100%	-27%	24%	23%

* Or closest date with representative margin (i.e. not reduced ahead of roll date)

** Standard S&P 500 Futures for GFC period; E-mini S&P 500 Futures for Covid-19 period

Source: J.P. Morgan

Initial Margin

- Initial Margin is the first line of defense against losses from a customer or member default.
- Initial Margin should increase during market stress periods, but frameworks should also employ safeguards against procyclical impacts of margin.
- CCPs must employ a margin framework that should cover the cost of portfolio liquidation
  - at the indicated confidence level in various market conditions (including changes in volatility)
  - without procyclical jumps in margin requirements.
- Margin floors protect initial margin from falling too low during low volatility.
- FIA calls on margin floors to be reviewed and, in some cases, strengthened.

Margin Floors

- Balance must be struck between appropriate pricing (not too high to discourage market participation) and safeguarding against procyclical impacts.
- FIA recommends a principles-based approach:

1) Stress Lookback Periods – Lookback periods are used to calibrate margin floors and must be sufficient in length (*ie,* 10 years) and include periods of significant market stress, such as 2008 or 2020. Look-back periods must demonstrate sufficiency and not be simply set at regulatory minimums.
2) Contract Specific – floors should be calibrated for the contract and asset class.
3) Absolute and Percentage Returns – margin amounts should be calibrated based on an analysis of both absolute and percentage returns in order to set floors that are adequate in both low and high price regimes.
4) Back-Testing - CCPs must demonstrate through back-testing that the floors are meaningful.

Back-Testing Rate of Change

- Policymakers should consider what measures can be taken to avoid rapid increases in margin requirements.
- One suggestion is to use back-testing to measure the potential for large and sudden increases and use the results to adjust the margin model.
  - Define a maximum rate of change over a pre-defined period of time, considering as an input the extent of change that would cause significant stress for clearing members, clients and the financial system.
  - Back-test using various stress scenarios to make sure the targeted rate of change is not exceeded.
- This is not intended to set a hard limit on margin increases when needed.
- Rather, it will help determine whether a margin model is sufficiently robust and anti-procyclical, and provide transparency for clearing members so that they can anticipate the potential call for liquidity.

Intraday Margin

- CCPs must be able to call for additional funds intraday to maintain sufficient collateral to cover actual and potential losses.
- Intraday calls can intensify funding pressures. Care should be taken to minimize that pressure, particularly during periods of market stress.
- Clearing members keep buffer margin in various forms, using internal assessments to predict in advance potential calls.
- CCPs require margin within 60 minutes; clearing members collect from clients on T+1.
- If initial margin is appropriately calibrated, **ad hoc calls should be the exception** and only used in extreme emergency situations. Unpredictability of ad hoc calls creates strain.
- Some CCPs call only for intraday losses and do not **pay out the gains**, creating further liquidity strains.
- Intraday calls that are required to be **met in cash and come late in the day** can cause funding issues.
- Finally, CCPs do not always allow such intraday **funding to be applied against an end-of-day requirement, resulting in double funding**.

Intraday Calls

- Routine intraday calls should be made at the same time every day.
- An intraday call should clearly separate initial and variation margin CCPs should allow non-cash collateral to cover intraday calls for IM
- Ad hoc intraday calls should be necessary only in times of extreme market dislocation or when the CCP has large, uncovered exposure to a member.
- CCPs should provide full transparency for triggers of ad hoc intraday margin calls.