MRAC

July 21, 2020

Observations on CoVid’s impact to Margin, Processing, Operational Health in Cleared Derivatives - A CCP perspective

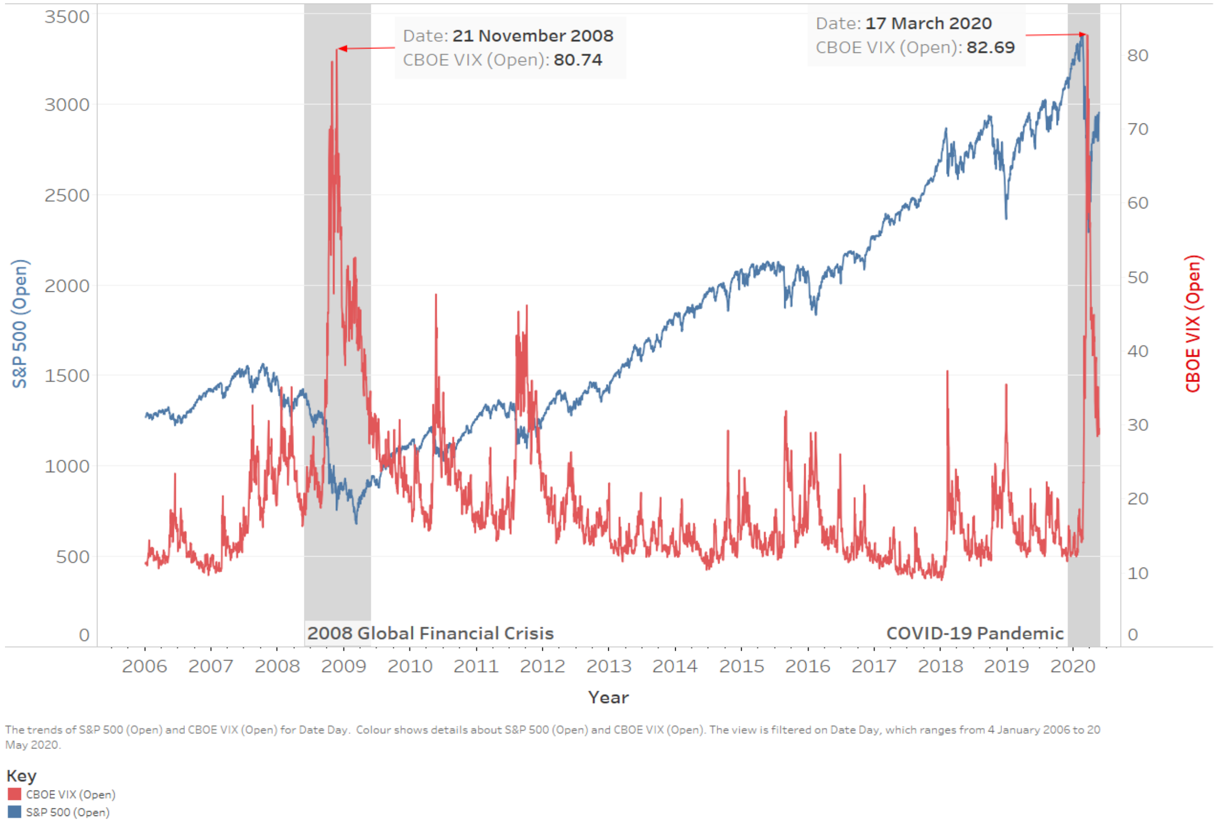
Lee Betsill, CRO CME Group

Impact of COVID-19 Pandemic and Market Events on Derivatives Markets

-Market Volatility in Historical Context

CCPs have successfully demonstrated their resilience during past and present crises. This can be observed by comparing the Global Financial Crisis (“GFC”) in 2008 - 2009 with the 2020 Coronavirus Crisis (“CC”). ***In both cases, CCPs managed market and operational risks and mitigated credit and liquidity risks – in short: fulfilling their purpose as designed – despite extraordinary volumes and high volatility***.

Source: FSB, “COVID-19 pandemic: Financial stability implications and policy measures taken” (April 2020), available at: https://www.fsb.org/wp-content/uploads/P150420.pdf.



The trends of S&P 500 (Open) and CBOE VIX (Open) for Date Day. Colour shows details about S&P 500 (Open) and CBOE VIX (Open). The view is filtered on Date Day, which ranges from 4 January 2006 to 20 May 2020.

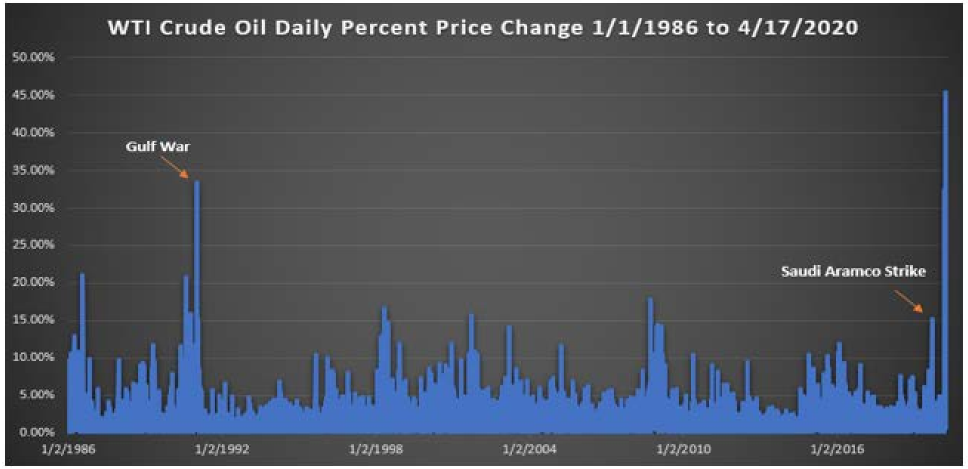
See also: CCP12, “CCPS AGAIN DEMONSTRATE STRONG RESILIENCE IN TIMES OF CRISIS” (July 2020), available at: https://ccp12.org/wp-content/uploads/2020/07/CCPs_again_demonstrate_strong_resilience_in_times_of_crisis.pdf. Note, such paper contains and discusses many of the data points included in this presentation.

Impact of COVID-19 Pandemic and Market Events on Derivatives Markets
-Market Volatility in Historical Context

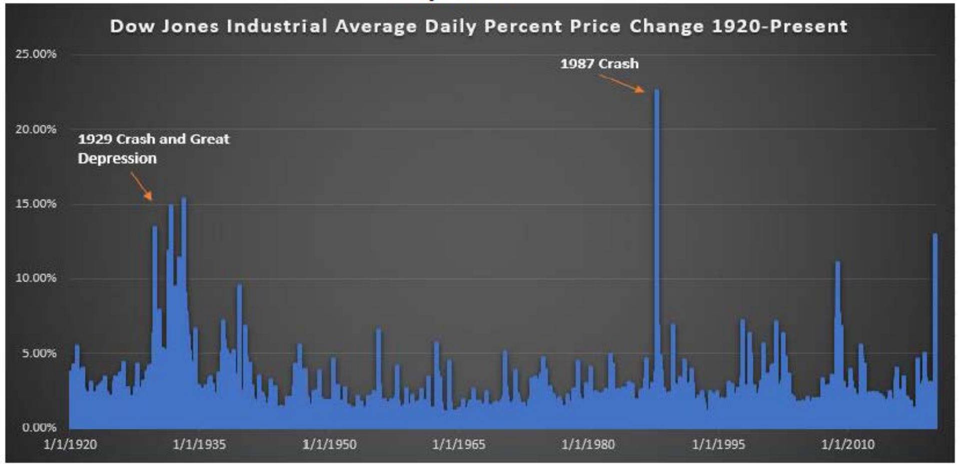
Market Volatility Observed During the CC:

- The 9 largest dollar moves in history of the S&P 500, the 10 largest for the Dow Industrial Average, and the 7 largest for the Nasdaq-100 occurred in March and April 2020
- S&P 500 and Nasdaq saw their second highest percentage down moves ever during this period
- WTI Crude saw its two largest price and percentage moves ever and went negative for the first time
- U.S. Treasury yields saw their largest daily percentage shifts and lowest absolute levels ever, with the entire yield curve dropping below 1% for the first time in history

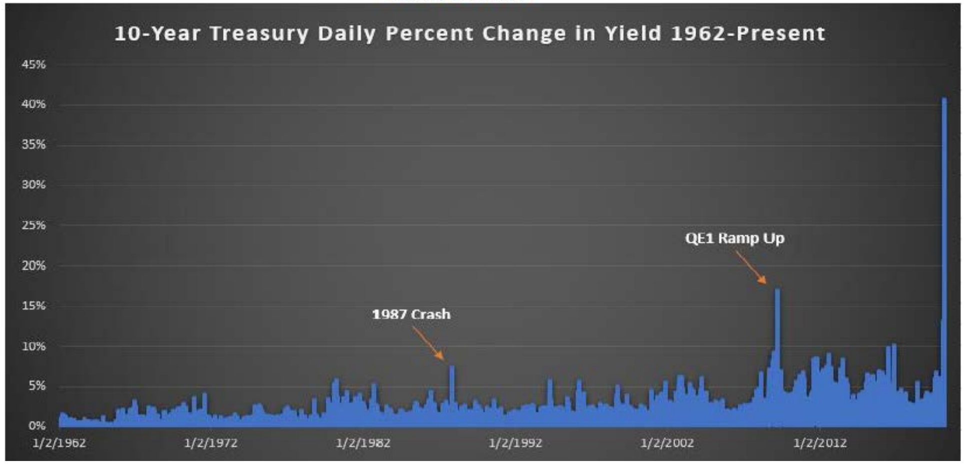
Crude



Equities

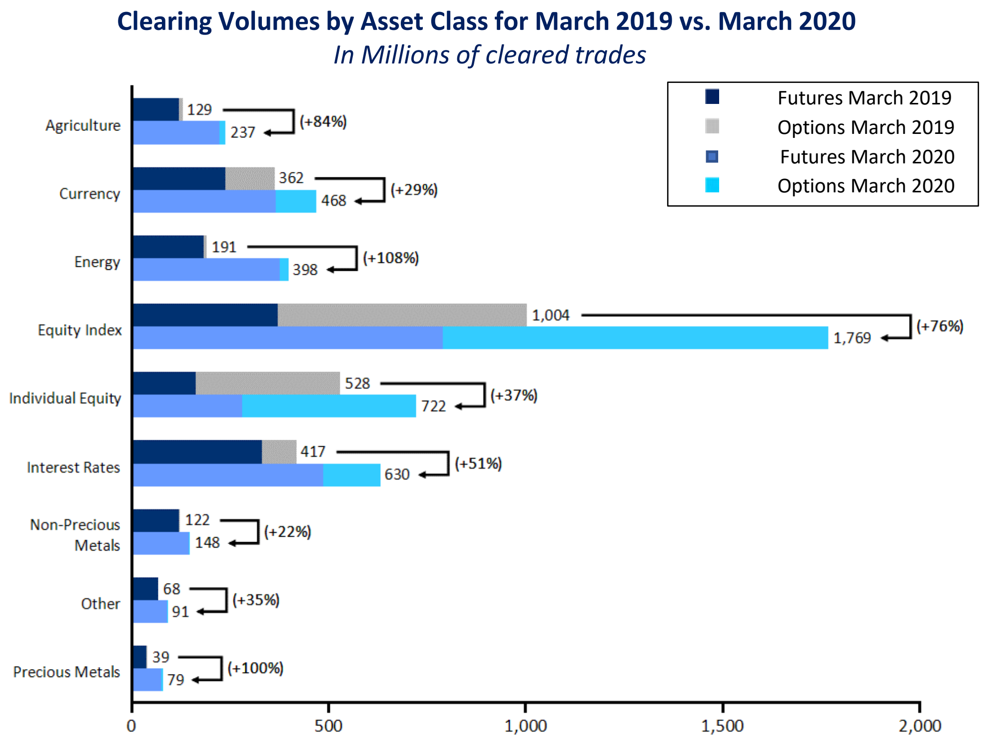


Treasuries



Exchange-Traded Derivatives Cleared Volume During the CC

Over the course of the CC, clearing volumes increased extraordinarily. ***Especially in March 2020, clearing volumes reached record highs***. In the asset classes comparison, clearing volumes in agriculture, energy, equity index and precious metals showed the largest increases.



Source: FIA, "ETD Volume – March 2020" (April 2020), available at: https://www.fia.org/resources/etd-volume-march-2020.

Operational Resilience of CCPs during the CC

Most CCP's implemented Business Continuity Plans in response to the CC, enabling full or partial work from home, split shifts, and/or remote sites. CCPs across the board restricted travel, further leveraged video conferencing tools, and required quarantine, where necessary. ***Despite these measures and the significant increase in volumes, core systems at CCP's remained resilient, as can be seen in Q1 reporting of PQD's related to system up time***.

Actual Availability Of CCP's Core System(s) Over The Previous Twelve Months

Comparison of Disclosure 17.2.1 – Q4 2019 vs. Q1 2020

PQD 17.2.1	Q4 2019	Q1 2020
Hong Kong Exchanges and Clearing Limited	99.98%	99.98%
Japan Securities Clearing Corporation	100.00%	100.00%
Eurex Clearing	100.00%	99.95%
LCH	99.95%	99.96%
Chicago Mercantile Exchange	100.00%	100.00%
Depository Trust & Clearing Corporation	99.94%	99.96%
Intercontinental Exchange, Inc.	99.99%	99.99%
The Options Clearing Corporation	99.99%	100.00%

Source: CCP Public Quantitative Disclosures in line with CPMI-IOSCO standards.

Margin Coverage During the CC

Across the board IM increases were observed during the CC, consistent with the design of margin models which are intended to reflect price movements at a certain confidence interval. ***That said, the size of the overall IM increases relative to extraordinary volatility observed, including as demonstrated by the VM flows, were relatively muted***. In light of the fact that many asset classes had repeated, significant price movements, some of these new observed price moves had to be incorporated into IM calculation to respect the selected confidence interval. ***This suggests that the anti-procyclical characteristics of CCP margin models worked accordingly, while maintaining appropriate coverage***.

Results Of Backtesting Of Initial Margin – Achieved Coverage Level

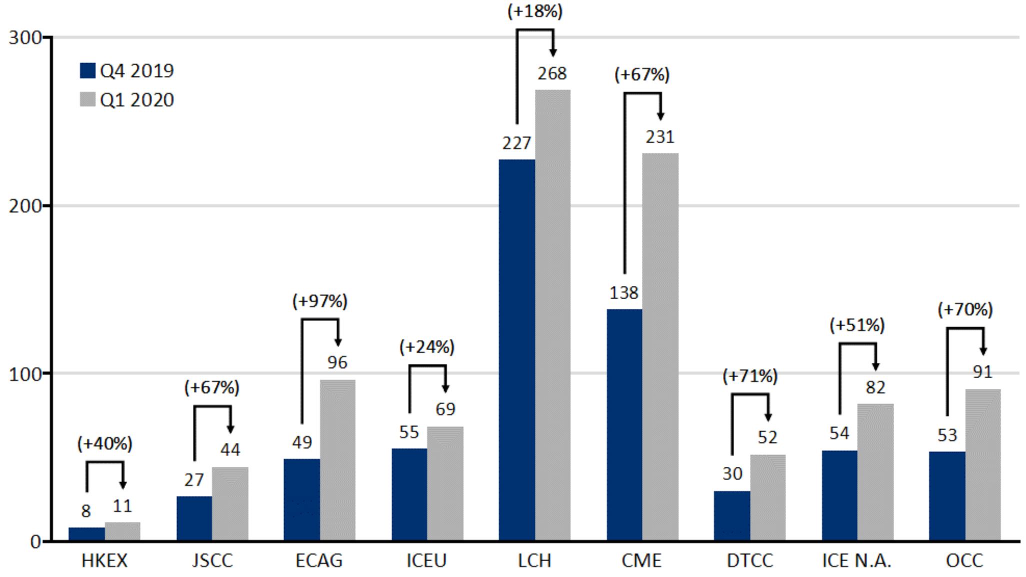
Comparison of Disclosure 6.5.3 – Q4 2019 vs. Q1 2020

PQD 6.5.3	Q4 2019	Q1 2020
Japan Securities Clearing Corporation	99.85%	99.54%
Hong Kong Exchanges and Clearing Limited	99.90%	99.80%
Eurex Clearing	99.82%	99.45%
LCH	99.97%	99.93%
Chicago Mercantile Exchange	100.00%	99.92%
Depository Trust & Clearing Corporation	99.43%	98.46%
Intercontinental Exchange, Inc.	99.94%	99.53%
The Options Clearing Corporation	99.98%	99.96%

Source: CCP Public Quantitative Disclosures in line with CPMI-IOSCO standards.

Total IM Required Quarter End Figures

Comparison of Disclosure 6.1.1 – Q4 2019 vs. Q1 2020 in bn USD



*Notably, the increases in IM show the increase from one quarter end to the next, but **in practice IM increases occurred throughout the course of Q1 2020 on an incremental basis**. This is designed to ease collateral pressures on market participants, while providing sufficient margin coverage.*

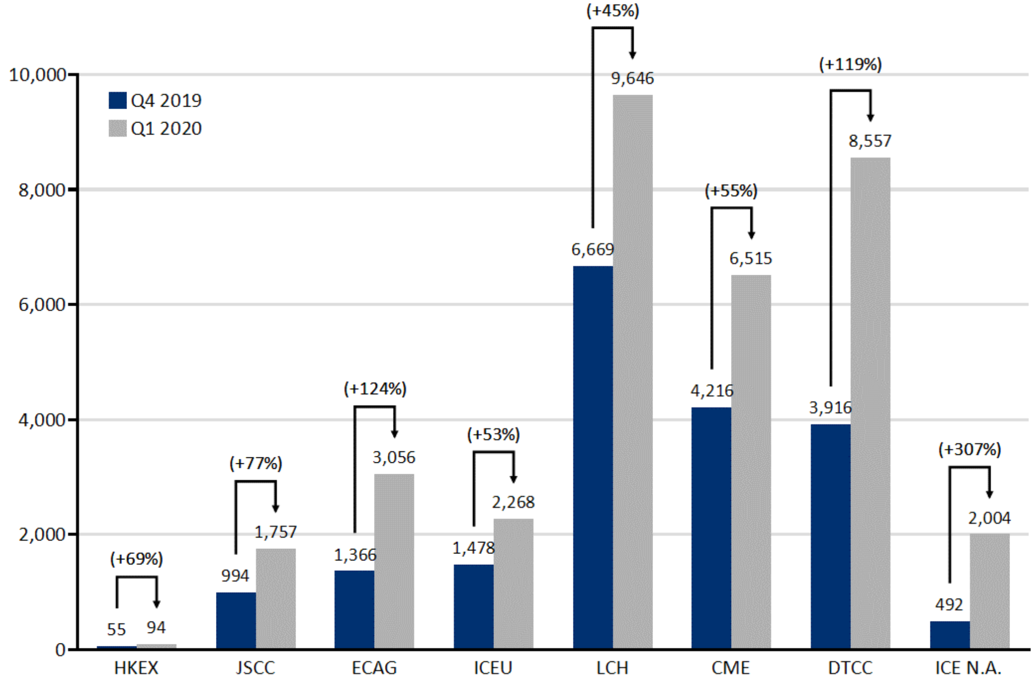
Source: CCP Public Quantitative Disclosures in line with CPMI-IOSCO standards.

Variation Margin During the CC

Average ***VM required at CCP's increased significantly in response to the sharp rise in volatility***. This demonstrates the severe day-over-day mark-to-market movements portfolios were experiencing, as would be expected.

Quarter Average VM Figures

Comparison of Disclosure 6.6.1 – Q4 2019 vs. Q1 2020 in m USD

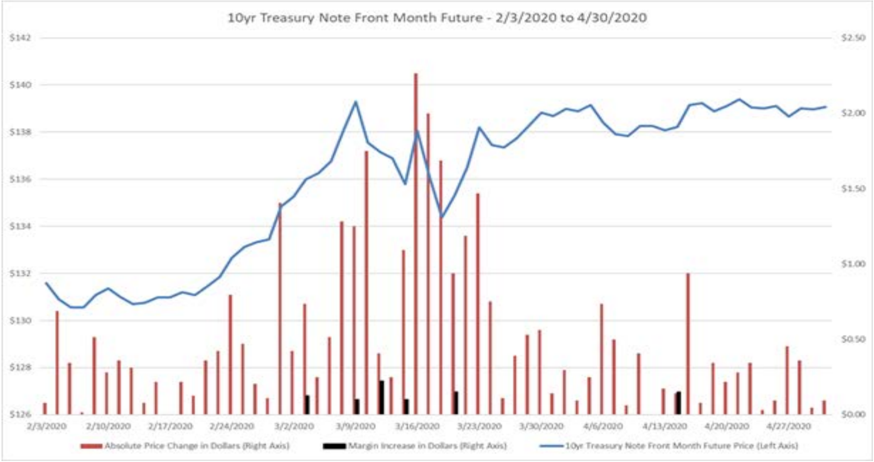


Notably, in comparison, to the IM disclosures, the VM disclosures are provided on a quarter average basis so days with more ***typical VM flows, as were observed in many cases in the early part of Q1 2020, depress the overall average*** *for Q1 2020.*

Source: CCP Public Quantitative Disclosures in line with CPMI-IOSCO standards.

At contract level, given already high levels of IM, IM increases were significantly smaller than VM calls.

10yr Treasury Note Front Month Future



S&P 500 Assuming 100 Contracts