

# COVID-19 and CCP Risk Management Frameworks

After the market turmoil caused by the COVID-19 pandemic in March and April 2020, the ISDA Clearing Member Committee analyzed how central counterparty (CCP) risk management frameworks reacted to the crisis, based on feedback from CCPs.

The results show CCPs dealt with the crisis well, managing record volumes while most of their staff worked from home. In total, there were three member defaults or close-outs, none of which threatened financial stability. This reflects a more stable financial system overall: clearing members are much better capitalized and hold more liquidity compared to the last crisis.

However, some issues did emerge. Procyclical initial margin (IM) requirements exacerbated market stress at certain points. Clearing members also lacked timely information about backtesting breaches and procyclicality in margin models. The paper makes recommendations to address both of those points.

## EXECUTIVE SUMMARY

In response to the market volatility triggered by COVID-19 in March and April 2020, the ISDA Clearing Member Committee<sup>1</sup> contacted CCPs around the globe to establish how their risk management frameworks held up during this period.

The findings show CCPs were able to withstand the most volatile market period since 2008. While there were three small member and some client defaults/close-outs in the US and Europe, none affected market stability or the capacity of clearing members to meet their financial obligations. Other than these defaults, no CCP reported near misses or issues with members paying margin. The stability of the system reflects the resiliency of CCPs, high levels of capital among clearing members and quick intervention by central banks to bolster liquidity. All in all, the Group-of-20 (G-20) derivatives reforms implemented after the 2008 crisis have worked well.

There was, however, a significant increase in both variation margin (VM) and IM. VM reflects the profits and losses of members and redistributes liquidity, so a large increase in VM was unavoidable given the extreme market volatility.

But procyclical IM drains liquidity from the market at greater levels during times of stress, and the increases seen globally were concerning. In line with the Principles for Financial Market Infrastructures, we believe CCPs should “adopt forward-looking and relatively stable and conservative margin requirements that are specifically designed to limit the need for destabilizing, procyclical changes”<sup>2</sup>.

The ISDA Clearing Member Committee recommends that anti-procyclicality (APC) tools are calibrated to ensure margin increases in response to volatility are less extreme in future. In addition, the paper recommends greater transparency of CCP models to enable predictability of margin levels during benign and stressed markets for clearing participants. Among other things, this should include what APC measures the CCP adopts. A standard for the measurement of procyclicality in CCP models should also be introduced, enabling the ratio between margin in stressed versus normal times to be measured in a common way.

Currently, public quantitative disclosures (PQDs) published by the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) are produced by CCPs on a quarterly basis with a lag of another quarter. Consequently, participants had to wait until late June/early July 2020 for information from March 2020. Information for April was reported five months later. This paper recommends the frequency of these disclosures should be increased, at a minimum, for essential data points like IM, default fund contributions and backtesting breaches to monthly disclosures.

The ISDA clearing member committee thanks the management of all CCPs for contributing to this paper by dedicating time for calls and/or returning questionnaires.

<sup>1</sup> This paper has been produced by the ISDA Clearing Member Committee, as CCPs would not have been comfortable sharing their responses to our questions with a wider audience

<sup>2</sup> Page 53, Principles for Financial Market Infrastructures, Committee on Payment and Settlement Systems and the International Organization of Securities Commissions, April 2012, <https://www.bis.org/cpmi/publ/d101a.pdf>

## INTRODUCTION

As the COVID-19 pandemic spread rapidly in March 2020, questions were raised about how market infrastructure would perform. In response, members of the ISDA Clearing Member Committee embarked on an analysis of CCP risk management frameworks during the crisis.

Telephone interviews were held with large global CCPs and other, regionally focused CCPs were asked to complete questionnaires. Some members have leveraged this outreach for their own internal CCP due diligence.

The analysis found that central clearing remained resilient during the period. In total, there were three member defaults/close-outs:

- Ronin Capital at CME Group and the Depository Trust and Clearing Corporation. Close-out was completed without the use of mutualized resources<sup>3</sup>.
- A member default at Polish energy CCP IRGiT. Mutualized resources were used<sup>4</sup>.
- AIK Energy Austria GmbH at Keler CCP. Mutualized resources were used<sup>5</sup>, but were subsequently paid back to non-defaulting members by the defaulter's estate.

The limited available data suggests non-systemically important CCPs were affected by the crisis more than global CCPs, and the use of mutualized resources by two smaller, regional CCPs is a concern. However, other than these three defaults/close-outs, there were no reported issues of clearing participants not meeting margin calls in time. CCP default management plans were therefore not put to the test as the defaults were limited in size and impact.

Overall, CCPs managed increased volumes well, with no material operational issues. Some markets experienced the largest single-day volumes/settlement requirements in history, at a time when most CCP staff were working from home. The analysis highlights a focus by CCPs on technology in recent years to support business continuity planning and increase capacity in settlement, clearing, risk management and cyber resilience. This investment has been necessary in many markets where central clearing continues to grow.

On top of this, financial institutions are much better capitalized compared to 2008, and have relatively large liquidity buffers. Rapid intervention by central banks during March and April 2020 also helped to alleviate liquidity concerns. All in all, the financial system held up well during the crisis.

However, the emergence of central clearing and margin for non-cleared derivatives as a result of the G-20 reforms has resulted in a shift from counterparty risk to liquidity risk and has led to large funding and liquidity requirements<sup>6</sup>.

<sup>3</sup> [https://www.cmegroup.com/media-room/press-releases/2020/3/20/cme\\_group\\_statementonroninllc.html](https://www.cmegroup.com/media-room/press-releases/2020/3/20/cme_group_statementonroninllc.html)

<sup>4</sup> [https://www.irgit.pl/rynek-finansowy/en/shared\\_content/shared\\_article/259](https://www.irgit.pl/rynek-finansowy/en/shared_content/shared_article/259)

<sup>5</sup> <https://english.kelerkszf.hu/kszfnews/?id=1000055> and <https://english.kelerkszf.hu/kszfnews/?id=1000833>

<sup>6</sup> *Global IM Collected for Derivatives in the First Quarter of 2020*, ISDA research note, <https://www.isda.org/2020/07/15/global-im-collected-for-derivatives-in-the-first-quarter-of-2020/>, *Public Quantitative Disclosure Newsletter*, CCP 12, [https://ccp12.org/wp-content/uploads/2020/07/CCP12\\_PQD\\_Newsletter\\_2020\\_Q1-1.pdf](https://ccp12.org/wp-content/uploads/2020/07/CCP12_PQD_Newsletter_2020_Q1-1.pdf)

## FINDINGS AND RECOMMENDATIONS

### Procyclicality

The G-20 reforms were intended to mitigate counterparty credit risk within the financial system but at the cost of higher liquidity and funding risk. This trade-off between market stability and liquidity requirements has created challenges for participants in funding margin affordably.

During the crisis in March and April 2020, CCPs lifted IM levels in response to increased volatility. The extent of the increase depended on the asset class and how conservative the CCP was in benign times, but margin requirements increased by more than 300% in some cases. Although these levels of procyclicality did not cause financial stability issues, they created challenges for participants to quickly fund the higher requirements during stressed markets.

Authorities are aware of this issue. The European Systemic Risk Board issued recommendations on mitigating the procyclicality of margin<sup>7</sup> (updated in June 2020<sup>8</sup>), while the Financial Stability Board (FSB) published a holistic review of the turmoil in March<sup>9</sup> that covers procyclicality of CCP margin. The FSB has also set out a work plan to further review the issues experienced in the second quarter of 2020.

Procyclicality was more evident in some cleared asset classes than others – margin levels on equity products were more volatile than interest rate products, for example. The impact also depended on the individual CCP and how conservative its risk models are in normal periods. In addition, the rate of increase differed between CCPs: some CCPs lift margin requirements immediately, while others do so gradually over a longer time. The paper highlights concerns about margin levels at those CCPs that adopt shorter margin periods of risk, which showed higher procyclicality.

Many CCPs (including those outside Europe) align APC tools with standards set out in the European Market Infrastructure Regulation (EMIR)<sup>10</sup>. These include:

- **Margin floor:** Margin requirements should not fall below a level calculated using volatility estimated over a 10-year historical lookback period.
- **25% buffer:** A margin buffer is set that is equal to at least 25% of calculated margin levels, which can be temporarily exhausted in periods when calculated margin requirements are rising significantly.
- **25% stressed scenarios in the lookback period:** The CCP assigns a weight of at least 25% to stressed observations in the lookback period.

Market participants and regulators agree that the levels of procyclicality seen during the COVID-19 crisis were too high. This paper supports a review of APC practices and the establishment of global standards.

<sup>7</sup> <https://www.esrb.europa.eu/news/pr/date/2020/html/esrb.pr200109~242bd091d4.en.html>

<sup>8</sup> [https://www.esrb.europa.eu/pub/pdf/reports/esrb.report200608\\_on\\_Liquidity\\_risks\\_arising\\_from\\_margin\\_calls\\_3~08542993cf.en.pdf](https://www.esrb.europa.eu/pub/pdf/reports/esrb.report200608_on_Liquidity_risks_arising_from_margin_calls_3~08542993cf.en.pdf)

<sup>9</sup> <https://www.fsb.org/wp-content/uploads/P171120-2.pdf>

<sup>10</sup> See article 28 of the regulatory technical standards on CCPs - Commission Delegated Regulation (EU) No 153/2013 of December 19, 2012 supplementing Regulation (EU) No 648/2012 at <https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013R0153&from=EN>

There is a theoretical spectrum from a CCP having no APC controls (its margin model uses today's volatility) to a model where margin is collected based on stressed calibration and hardly changes with market volatility. The ISDA Standard Initial Margin Model (ISDA SIMM) sits close to the latter end of the spectrum in order to meet Basel Committee on Banking Supervision and IOSCO requirements for bilateral IM models to be calibrated to a period of stress to limit procyclicality. In addition, calibration requires a large amount of ISDA SIMM user data on an array of less liquid risk factors that take time to collect and prepare, so the model cannot be recalibrated on a daily basis. The ISDA SIMM is therefore much more conservative than CCP IM models (and benchmarked to ensure it remains so) to make up for less frequent recalibration.

The ISDA Clearing Member Committee recommends reviewing APC tools to limit procyclicality but recognizes the need to retain risk sensitivity within margin models. The peak of the market volatility is now embedded in the lookback period, so many margin models will produce higher margin levels, and this will remain the case over the near term. One recommendation is for the first half of 2020 to remain a historical stressed period in scenarios and not to roll off.

Reducing procyclicality will, in most cases, result in higher levels of margin in benign times. This will make clearing more expensive, especially for non-financial end users. However, the risk of a steep increase in margin requirements during market stress that might require a fire sale of hedges, investments or production material outweighs the cost of higher margin in benign times.

## Review of APC Tools

### EMIR 10-year Floor

One APC option in EMIR is a 10-year equally weighted floor to margin. This floor is easy to calculate and apply to an existing margin model. However, once the floor is exceeded, this tool has no further impact on procyclical IM increases. During the COVID-19 crisis, 10-year floors mostly had little impact, as 2008 stress periods had rolled off the lookback period. It was regular margin models with a shorter lookback period that drove higher margin requirements. The lookback period of the APC floor would have to be extended to include prior periods of market stress to make it more robust and fit for the future.

### EMIR 25% Buffer

Under this tool, a 25% buffer is added to margin requirements in benign times and is then used during periods of stress. This implicitly assumes any margin shock will be covered by this buffer. However, it appears the buffer was not released by some CCPs and was treated as an add-on.

In addition, margin requirements for certain equities increased by more than 300% in March versus margin levels in January 2020, making a 25% buffer ineffective. We believe it is difficult to calibrate this APC tool in a way that it is meaningful. Calibration should instead be dynamic and aligned to the underlying contract, requiring analysis of previous price movements in both benign and stressed periods.

There is also insufficient guidance over when this buffer can be used and when it should be replenished. Furthermore, the governance arrangements for such a buffer at CCPs that apply this APC tool are not clear.

### EMIR Stressed Scenarios in the Lookback Period

If a quarter of scenarios in the lookback period are from a stressed period, these scenarios should drive a 99% value at risk. CCPs using this APC tool experienced increases in margin during the recent crisis, but not to a significant extent compared to other CCPs.

We believe further guidance is needed on how these stressed scenarios are chosen and maintained, as well as the framework governing this process.

## Recommendations on Procyclicality

### Recalibration of APC Tools

Anti-procyclicality (APC) tools need to be reviewed and recalibrated. This paper recommends that APC tools should be calibrated to ensure CCPs clearing similar products exhibit comparable levels of procyclicality and similar rates of change, taking nuances associated with their regional market into account. This could be achieved by calibrating APC tools to define target levels of margin increases in stressed scenarios like the most recent crisis. For the avoidance of doubt, our analysis refers to calibration and does not propose a cap on margin levels. ISDA members acknowledge that CCPs cannot be under-margined at any time.

This paper does not express a preference for any particular tool, but recommends improving the effectiveness of current tools. Other recommendations include increased transparency and more stringent governance on procyclicality, both within the CCP (including its risk committee) and by the CCP's supervisor. More detailed global standards on APC tools would also be helpful.

### Transparency

CCPs already report margin levels, at least in total, within their public quantitative disclosures (PQDs). This paper recommends that margin levels also be disclosed at the product level. In addition, this data should be available on a more frequent basis – for instance, monthly – so fluctuations in margin levels can be monitored more effectively.

As overall margin is driven by both margin levels and portfolio changes by clearing members, dedicated data fields should also be introduced in the PQD covering a CCP's procyclicality targets, as well as a standardized procyclicality measure for all products and for products with the highest clearing volumes. This procyclicality measure could be based on a standardized comparison of margin in stressed historical periods versus benign times.

### Margin Models

This paper recommends an independent review of CCP models in general. In particular, the margin period of risk assumptions should be aligned to the risk profile of the underlying contract and not driven by asset class default values. As such, we recommend a review of regulatory minimums in CCP margin models.

## Public Quantitative Disclosures

Most CCPs produce PQDs in line with the public quantitative disclosure standards for central counterparties set by CPMI/IOSCO<sup>11</sup>. In contrast to the ISDA SIMM, which has been developed with users, is governed by a committee of industry participants and is completely transparent to all stakeholders, CCP margin models are often more opaque and so clearing members depend on the PDQs. Most of the data is reported quarterly and is available three months after the end of the period subject to reporting.

While CCPs say backtesting results and the number of breaches were acceptable and within regulatory tolerances, there were significant increases in backtesting breaches during the crisis, as expected. However, clearing members were prevented from analyzing CCP resilience in a timely fashion due to the lengthy time lag for reporting. Information on backtesting breaches during March 2020 was not available until end of June/early July, while breaches in April were only disclosed in late September 2020.

This frequency is sufficient for data points like default fund contributions and IM in benign times, but the delay in stressed periods means participants have to wait for months to get insight into increases in margin levels or backtesting breaches.

### Recommendations on Quantitative Disclosures

#### Disclose Some Data Points More Often

We recommend that some data points are reported earlier and more often. In particular, default fund contributions, initial margin and backtesting breaches should be reported monthly, not longer than a week after month-end. While quantitative disclosure could, in theory, enable positions to be reverse engineered, this risk is negligible for the data points referenced above.

Inclusion of additional data and increased frequency of reporting should be part of regulation, so there is no early mover disadvantage for CCPs implementing this reporting first.

#### Standardize Backtesting Disclosures

The manner in which backtesting breaches are reported is not consistent across CCPs. Some include margin add-ons, while others do not, and some reporting is at the member level (aggregating house and client positions), while some is at the account level (separating house and client activity). We recommend these disclosures are standardized.

<sup>11</sup> <https://www.bis.org/cpmi/publ/d125.pdf>

## OUTREACH TO CCPS AND CCP RESPONSES TO ISDA'S QUESTIONS

ISDA members sent questionnaires to all major CCPs and held calls with several between April and August 2020 to explore how risk management frameworks reacted to COVID-19. Not all CCPs responded to the questionnaire and calls, but feedback was received from CCPs accounting for 97% of global default funds across all CCPs that provide PQDs.

### Reponses to Questions

#### **Are you satisfied with the performance of your margin model over the crisis to date?**

An overwhelming majority of CCPs expressed satisfaction with the performance of their models. A few CCPs said they applied, or will apply, targeted changes to their model or had made ad hoc changes to margin rates. One CCP introduced an add-on while its model is recalibrated.

Many CCPs also highlighted large increases in volumes, which they handled well overall.

#### **How did your margin models react to increased volatility? What was the maximum one-day change (absolute and relative increase) over the crisis? What has the total increase been over the crisis to date?**

Nearly all CCPs experienced increased volatility in the products they clear. The extent of the changes depended on their cleared product set – for example, equities were affected worse than interest rates.

There was a wide variance in how CCPs reacted to this increase in volatility. Many CCP models adapted automatically. Some CCPs used expert judgement to ramp up margin rates gradually, some adapted model output with expert judgement, and some required their risk committees to oversee margin increases. Most CCPs said their models reacted to the crisis as expected. Some also increased margin based on regulatory requirements.

In addition, some CCPs said margin increased because of portfolio changes by their members, on top of higher margin rates.

#### **How many margin breaches (at a contract, product and portfolio level) have you experienced? Do you observe a trend in backtesting breaches or near misses?**

Most CCPs did not provide detailed information about margin breaches on the calls but referred to PQDs. While many CCPs reported a higher level of breaches, all claimed that backtesting on a portfolio level was within their set confidence interval or was brought back to this confidence interval by recalibration or changes to their models.

#### **On the back of large moves in equity markets, has margin on short deep-out-of-the money equity index options been sufficient?**

Some CCPs reported that increased volatility in March 2020 was an extreme shock that was not built into margin models and therefore caused some contract-level breaches in backtesting. Others did not see issues with these portfolios.



**Have you applied any expert judgement in adjusting margin? For example, if the model indicates a significant increase in margin is required to maintain the target coverage, would the CCP increase margin once or over a period of time to limit the impact on members?**

The processes to set margin can include expert judgement at many CCPs. Several said having this ability allowed them to space out margin increases over time.

However, the majority said they did not use expert judgement outside their normal processes. Some CCPs applied targeted changes to their models and/or processes. One CCP introduced an add-on while its model is recalibrated.

In terms of stress testing, some CCPs reported that the stresses seen in March 2020 will be integrated into their stress-testing scenarios.

**With respect to portfolio margining, have you adjusted or do you contemplate adjusting margin offsets?**

The majority of CCPs did not adjust margin offsets – at least, not outside changes to offsets driven by their models or procedures. Many CCPs pointed out that margin offsets are calibrated very conservatively anyway.

One CCP classified a small list of certain products differently to remove those from portfolio margining. Another made small changes to offsets for some products.

**Are any floors applied to the margin amount that the CCP charges?**

Many CCPs use floors. Some of them do not floor margin levels, but volatility. Other CCPs are using alternative APC tools or a combination of these tools. Some CCPs that use floors are reviewing them or have already increased floors for some products.

**What APC or EMIR APC measures do you employ? Have they been effective during the crisis? How do you assess their effectiveness?**

Most CCPs globally use at least one of the three APC tools prescribed by the European Securities and Markets Authority. The majority of CCPs use floors, and some use the 25% buffer.

Some CCP also employ other measures like seasonal adjustments, implied volatility, margin buffers or a stressed margin component.

**How will you deal with negative rates/prices if applicable?**

Where negative rates and/or prices are possible, the majority of CCPs have the capability to deal with this. Some are currently working on implementing this capability. Other CCPs do not have the capability as the products they clear will not have negative prices.

**Have there been issues with investing margin cash in the repo market?**

While EU CCPs are required by regulation to invest cash margin in a secured fashion, many CCPs outside Europe – especially in Asia – deposit cash at commercial banks. One CCP deposits cash margin in government-owned banks. Other CCPs, mostly in the US and EU, can deposit cash in a central bank account, the best option for a CCP, and predominantly use central bank deposits for investing cash.

CCPs that use the repo market for investment did not report any issues in doing so.

**Have members faced any difficulties in paying margin? Have you extended settlement windows?**

The large majority reported no difficulties in members paying margin and did not have to extend settlement windows. A minority of CCPs said there had been isolated issues with payments or short increases in cut-off times. These were operational and partially due to issues at payment banks, they said.

**Have there been any defaults or near misses?**

Ronin Capital's cleared portfolios<sup>12</sup> were liquidated at two US CCPs. The liquidation was successfully performed, and any losses were covered by the resources of Ronin Capital held by the CCPs. There was no impact on clearing members or clients. This analysis did not include calls with the IRGiT and Keler CCP, two other CCPs that experienced member defaults.

Many CCPs said they performed additional internal fire drills during this period. At least one CCP mentioned payment issues by clients to their members.

**How would default management work without the ability to assemble a default management group (DMG) during times of travel bans and working from home?**

All CCPs claim they can manage defaults under their business continuity models. For some CCPs, this involves managing defaults from home. Others have core staff in the office or send employees onsite in the event of a default.

Many CCPs do not have DMGs. Those that do mostly convene the group by electronic means. CCPs are mindful of the confidentiality issues posed by virtual meetings and are working on solutions for these issues.

Other CCPs prefer the DMG to assemble in the CCP's offices if possible. In some cases, lockdown has not affected the ability of the DMG to meet, and it will become increasingly feasible as lockdowns lift.

**Are you able to manage a default scenario remotely – for example, via a web-based default management system?**

Many CCPs have web-based default management systems. Other CCPs can manage a default remotely or require some part of their staff to be in the office. No CCP said it would have difficulties managing a default, and many have tested their procedures under crisis conditions.

<sup>12</sup> <https://www.cnbc.com/2020/03/20/clearing-firm-ronin-capital-unable-to-meet-capital-requirements-at-cme-sources.html>

**Have there been changes in credit quality of collateral (for example, cash replaced by bonds)?  
Have you made any changes to the list of acceptable collateral or applied haircuts?**

The majority of CCPs reported no changes in the credit quality of collateral. If there were changes in collateral composition, these mostly involved increased levels of cash. That is because it was easier for clearing participants to pay increased margin in cash, and this has partially and slowly been substituted with securities collateral.

Some CCPs also reported shorter duration government bonds being posted as margin.

Most CCPs said they did not change either the list of eligible collateral or haircuts on an ad hoc basis. However, many reviewed haircuts and eligible collateral as part of routine recalibrations. In these cases, haircuts mostly increased.

**Have liquidity requirements changed based on the recently experienced stress period?**

A large majority reported that liquidity requirements had not changed during the crisis, or that the changes were less than the liquidity available.

**Has the crisis led you to perform an unscheduled parameter recalibration (margin, concentration charge or haircuts)?**

Some CCPs did apply changes to margin models, portfolio offsets or haircuts. Several CCPs reported that some reviews/recalibrations were triggered by market moves, in line with their defined processes.

**How long can you continue to perform tasks (both business-as-usual tasks and management of a clearing member default) as part of business continuity plans and/or a work-from-home environment?**

All CCPs said they can continue indefinitely, although many CCPs have been bringing some staff back to the office.

**Does the CCP look to monitor the activity and behavior of clients of clearing members (in terms of risk appetite, concentration and timely margin obligations)? If so, would the CCP have observed any issues?**

The majority of CCPs monitor their clearing members only. Some CCPs do not have visibility over the identity of their clearing members' clients. Some do have this visibility and monitor client positions, often for concentration risk.

At least one CCP reported defaults of clients.

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