Optimizing Incentives, Resilience and Stability in Central Counterparty Clearing

Perspectives on CCP Issues from a Utility Model Clearinghouse

OCC

THE FOUNDATION FOR SECURE MARKETS[SM]

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Key Highlights

- Central counterparty clearinghouses like OCC — which stand between buying and selling parties in trades and manage the risk to the market should one side of a transaction default — have worked extremely well over the course of their existence by underpinning stable markets to the benefit of the investing public during times of market stress.
- With record-setting cleared contract volume so far in 2020, OCC is taking new steps to further enhance its financial and operational resiliency and respond to industry feedback, including previously establishing skin-in-the-game, and recently announced plans to seek regulatory approval to increase it.
- CCPs must have an eye toward supporting the entire market ecosystem, balancing and optimizing incentives toward maximum stability, security and continued functioning in regular times and particularly in times of stress.

Optimizing Incentives, Resilience and Stability in Central Counterparty Clearing

Central counterparty (CCP) clearinghouses are critical market infrastructures that have functioned remarkably well since their inception, and their performance during the 2008 financial crisis ushered in a new embrace of central clearing as a proven risk mitigant for financial markets. Throughout those volatile times, cleared markets continued their orderly and transparent function to the benefit of the investing public and the economy at large. Policymakers in the United States and around the world took notice and mandated that a number of previously uncleared markets should be restructured in order to reap the benefits of CCP risk management. The resulting increase in CCPs' systemic importance also led to significantly enhanced regulatory requirements and guidance for CCPs across jurisdictions. During the past decade, CCPs have committed unprecedented resources to delivering the enhanced financial and operational resilience demanded by policymakers, regulators and market participants. CCPs' smooth functioning during the dramatic markets of this year's pandemic demonstrate that these efforts are serving the markets well.

OCC, founded in 1973, is the world's largest equity derivatives clearing organization. OCC operates under the jurisdiction of both the U.S. Securities and Exchange Commission (SEC) and the Commodity Futures Trading Commission (CFTC). In addition, OCC has been designated by the Financial Stability Oversight Council as a Systemically Important Financial Market Utility (SIFMU) under Title VIII of the Dodd-Frank Wall Street Reform and Consumer Protection Act (the Dodd-Frank Act). As a SIFMU, OCC is also subject to oversight by the Board of Governors of the Federal Reserve System. OCC is the sole clearing agency for exchange-listed equity options in the U.S., and operates as a market utility.

OCC, clearing firms, exchanges, and market participants have a common interest in maintaining a robust risk management framework so that defaults are rare, and that in the unlikely event that there is a clearing member default, the prefunded financial resources of the defaulting clearing member can, in most cases, cover its obligations to OCC. This is the fundamental characteristic of a 'defaulter pay' model, and, we believe, the cornerstone of CCP resilience.

Because of our shared interest with market participants, we review relevant papers from industry participants and stakeholders, and examine other CCPs' practices. One such paper is *A Path Forward for CCP Resilience, Recovery, and Resolution* (Paper).[1] We appreciate the views articulated in the Paper, and there are a number of conclusions and recommendations within the Paper with which we agree and a number of changes that we are making to respond to these recommendations. There are other topics where we partially agree with the Paper's conclusions and several matters where we disagree based upon our perspective as a utility model clearinghouse for exchange-traded derivatives.

In this paper, we are pleased to share our perspectives on issues recently raised by market participants, and show how OCC is taking tangible and specific actions to balance and optimize incentives among all market participants to best support the markets we serve and clear.

[1] The Paper was originally released in October 2019 by a group of nine firms (Allianz, Blackrock, Citi, Goldman Sachs, Société Générale, J.P. Morgan Chase, State Street, T. Rowe Price and Vanguard), and re-released in March with 11 additional firms as signatories (ABN AMRO Clearing, Barclays, Credit Suisse, Deutsche Bank, Commonwealth Bank of Australia, Franklin Templeton, Guardian Life, Ivy Investments, Nordea, TIAA, and UBS).

Evolution of CCPs and CCP Regulation

CCPs provide markets with risk mitigation through counterparty substitution whereby the CCP becomes the counterparty to every trade – the buyer to every seller and a seller to every buyer. CCPs also engage in multilateral netting, which reduces the risk in the overall system. As the first line of defense against a default, CCPs establish membership criteria and monitor their members against these criteria. CCPs also collect margin to cover the expected period from the time of a default until the positions are closed out. Portfolios are marked-to-market, evaluated throughout the trading day, and settled at least once a day (they can also be settled intra-day). In addition, CCPs establish default funds, typically funded by their members, to cover potential exposure to the nonperformance of any member, thus mutualizing the risk of member failure. CCPs also have default management procedures and can draw on pre-funded resources, known as the default waterfall[2] to assist them in managing a default. Finally, CCPs have in place recovery and wind-down plans.

The success of the CCP model was perhaps best demonstrated when handling the Lehman Brothers bankruptcy during the financial crisis of 2008. As Peter Norman described in his book, *Risk Controllers: Central Counterparty Clearing in Globalised Financial Markets*: "Within a week of the Lehman bankruptcy, most outstanding open positions relating to these trades had been neutralized or 'hedged'…Within two weeks, most of Lehman's customers were transferred to other investment companies. By late October 2008, CCPs in most leading financial markets had reported success in managing the biggest default in financial history without cost to their member companies."[3]

On the heels of the financial crisis, international policy makers expanded the prevalence of, and reliance on, the CCP model as a part of their efforts to support the stability of the financial system. Perhaps most notably, in 2009, the G-20 committed that "all standardized OTC derivative contracts should be […] cleared through central counterparties by end-2012 at the latest."[4] It was clear to policymakers that the risk management enhancements provided by CCPs were preferable to the post trade practices of the bi-lateral OTC derivative markets.

The G-20's mandate led to a number of subsequent proposals and guidance from international policymakers, including the Financial Stability Board (FSB), the Committee on Payments and Market Infrastructures (CPMI), and the International Organization of Securities Commissions (IOSCO), which have also implemented a framework of international standards for CCP resiliency, recovery, and resolution that has further strengthened CCPs and the central clearing model. This framework includes the *Principles for Financial Market Infrastructures* (PFMIs), which was published by CPMI-IOSCO in April 2012; *Key Attributes of Effective Resolution Regimes for Financial Institutions*, which was published by the FSB in October 2014; and *Guidance on Central Counterparty Resolution and Resolution Planning*, which was published by the FSB in July 2017.[5] As Dietrich Domanski, Secretary General of the Financial Stability Board, noted in 2019, "Financial reforms around central clearing have fixed the main fault lines exposed by the financial crisis in derivative markets. Increased clearing has simplified the previously complex and opaque web of derivatives exposures. The CCPs supporting that clearing are more resilient. In addition, more collateral is in place to reduce counterparty credit risk within the system. Some

[2] The default waterfall typically consists of the defaulting party's initial margin and default fund contribution, a contribution of CCP capital, and then the default fund contributions of non-defaulting members.

[3] Risk Controllers: Central Counterparty Clearing in Globalised Financial Markets, Peter Norman, p. 26 and 27. Peter Norman is a former journalist and author.

[4] G20 Leaders Statement: The Pittsburgh Summit September 24-25, 2009, Pittsburgh, (http://www.g20.utoronto.ca/2009/2009communique0925.html)

[5] Other important framework documents include: CPMI-IOSCO, Recovery of financial market infrastructures, October 2014, revised July 2017 and *Resilience of central counterparties* (CCPs): *further guidance on the PFMI*, July 2017.

estimates suggest an additional $1 trillion of collateral is now held globally against all derivative trades."[6]

Many jurisdictions have incorporated these international standards into laws, rules and regulations that are tailored to the specific characteristics of their local market, legal framework and the CCPs subject to their authority. In the U.S., for example, new standards for CCPs were implemented pursuant to the Dodd-Frank Act and have been incorporated into the SEC's Standards for Covered Clearing Agencies and the CFTC's Core Principles for Derivatives Clearing Organizations (DCOs). Five U.S. CCPs, including OCC, have been designated by the Financial Stability Oversight Council as SIFMUs and are subject to enhanced supervision by their primary regulator and oversight by the Board of Governors of the Federal Reserve.

More specifically, the SEC adopted Rule 17Ad-22 to "strengthen the substantive regulation of registered clearing agencies, promote the safe and reliable operation of registered clearing agencies, and improve efficiency, transparency and access to registered clearing agencies."[7] The SEC then adopted Rule 17Ad-22(e), which established enhanced standards for registered clearing agencies that meet the definition of a "covered clearing agency" to "impos[e] consistent, higher minimum risk management standards across all covered clearing agencies" and "further mitigate the potential for moral hazard associated with risk management at a covered clearing agency."[8] The CFTC adopted Subpart B of Part 39 of the CFTC Regulations, which codifies eighteen core principles and related regulations with which DCOs must comply to obtain and maintain its registration status.[9] And for those CCPs deemed SIFMUs, as OCC is, the Federal Reserve serves in an oversight capacity along with the primary regulators. In practice this means that, among other things, certain SIFMU rulemakings are subject to an advance notice process, in addition to the regular rule filing process, for any changes to their risk management framework, and the Federal Reserve is involved in the rulemaking and examination processes.

OCC's Perspective on CCP Resiliency, Recovery, and Resolution

OCC is a registered clearing agency under SEC jurisdiction, clearing exchange-listed options and securities lending transactions. As a registered DCO under CFTC jurisdiction, OCC clears transactions in futures and options on futures. This is a fairly narrow product mix. For example, OCC does not clear over-the-counter (OTC) derivatives. As a registered clearing agency, OCC is a self-regulatory organization under the Securities Exchange Act of 1934. Self-regulatory organizations are charged with an important public trust to carry out their self-regulatory responsibilities effectively and fairly, while fostering free and open markets, protecting investors, and promoting the public trust.

OCC operates as an industry utility and its governance and business model is different than publicly traded or vertically integrated CCPs. OCC is owned by five options exchanges and governed by a Board of Directors (Board) that includes nine clearing member representatives, five exchange representatives, five public directors and one management representative. As a result, 70% of the Board is comprised of clearing member and public directors.

OCC is the sole clearing agency for listed equity options in the United States and, as noted, operates as a market utility. Over 95 percent of OCC's revenue is generated from clearing fees, and OCC manages its resources under an SEC-approved Capital Management Policy that establishes how OCC sets its target regulatory capital level, how clearing fees are set, and how it will manage its capital in relation to defined thresholds. For example, capital exceeding the target capital requirement and not needed for investment in OCC's

[6] CCP resilience, recovery and resolution: completing the journey towards resilient derivatives markets, remarks by FSB Secretary General, Dietrich Domanski, Frankfurt, February 27, 2019 (https://www.fsb.org/wp-content/uploads/S270219.pdf).

[7] Standards for Covered Clearing Agencies, 81 Fed. Reg. 70786, 70852 - 70853 (October 13, 2016) (footnote omitted).

[8] 81 Fed. Reg. 70786, 70850.

[9] Derivatives Clearing Organization General Provisions and Core Principles, 76 Fed. Reg. 69334 (November 8, 2011).

infrastructure or initiatives is used to lower the cost of participation in the markets we clear first as skin-in-the-game and second as a basis for reduced clearing fees or refunds.

To strengthen its risk management framework given its designation as a SIFMU, OCC has embarked on a transformation during the past five years. As part of this transformation, we have made material enhancements to our margin methodology, revised our default fund methodology, implemented a new approach to liquidity stress testing, and elaborated and obtained approval for our Recovery and Wind-down Plan.

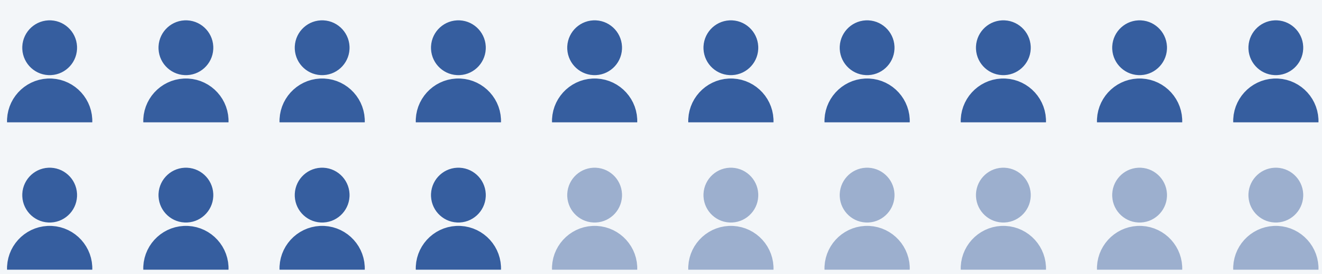
OCC is the first derivatives clearinghouse in the world to use a large-scale Monte Carlo-based risk management methodology. We have put in place a sophisticated and conservative margin methodology called the System for Theoretical Analysis and Numerical Simulations, or STANS.[sm] As part of this methodology, OCC has adopted a conservative approach related to the confidence level that the initial margin would be sufficient to cover losses incurred in liquidating an individual portfolio.[10] In addition, OCC applies margin add-ons to address concentration, wrong way, liquidity, and de-correlation risks, using a 10-year lookback as an anti-procyclicality tool.

In 2018 we enhanced and changed our methodology for determining the size of our default fund, driven by enhanced stress testing capabilities that include a range of historical and hypothetical market events, including 'extreme but plausible' scenarios. This includes a 'Cover 2' approach that allows OCC to cover the concurrent default of its two largest clearing firms that would generate the largest aggregate credit exposure in 'extreme but plausible' market conditions. This approach exceeds U.S. regulatory standards applicable to OCC and better aligns OCC with other systemically important derivative clearing houses.

Additionally, we have implemented a new approach to liquidity stress testing and determining the adequacy, sizing, and sufficiency of OCC's liquidity resources.[11] OCC's liquidity risk management framework is designed to ensure that OCC holds sufficient qualified liquid resources to meet settlement obligations with a high degree of confidence under a wide range of foreseeable stress scenarios, including the default of the clearing

OCC Board of Directors

OCC is owned by five options exchanges and governed by a Board of Directors that includes nine clearing member representatives, five exchange representatives, five public directors and one management representative. As a result, 70% of the Board is comprised of clearing members and public directors.



[10] OCC has adopted a 99% confidence level with expected shortfall, which means that all of the observations from 99% to 100% are incorporated in the margin evaluation. This provides for robust risk management, as compared to other types of Value-at Risk methodologies that only evaluate at a 99% level, by incorporating the 'fat tail' characteristics of portfolio risks.

[11] OCC has diversified its sources of liquidity to include non-bank entities. Chairman of the Federal Reserve Jerome Powell highlighted in a 2017 speech the benefits of diversifying sources of liquidity away from "the same limited set of clearing members." https://www.federalreserve.gov/newsevents/speech/powell20170623a.htm

member organization or group that would generate the largest aggregate payment obligation in extreme but plausible market conditions, which is the U.S. 'Cover 1' standard.[12]

Finally, in the unlikely event that OCC's pre-funded resources are depleted and credit and liquidity shortfalls remain, OCC has a defined set of recovery tools in its Rules and its Recovery and Orderly Wind-down Plan (approved by the SEC in August 2018)[13] to ensure that it continues to deliver clearing and settlement services, which is in clearing members', exchanges', and market participants' interest. These recovery tools include clearing member assessments, voluntary contributions by clearing members, voluntary tear-ups, and involuntary partial tear-ups.

Building on our strong foundation, OCC works to continually improve and adapt as markets evolve. It is in that spirit of improvement that we believe the issues discussed in the Paper are rightly considered. We provide our views about CCP resiliency, recovery and resolution through the lens of a CCP which operates as an industry utility, clearing listed derivatives with proprietary models and methodologies which are appropriate for the markets and products we clear. We are overseen by a Board with 70% of its members either clearing firm representatives or public directors. It is from this perspective that we question the Paper's description of the default of a member of Nasdaq Clearing AB as raising "broad concerns related to CCP governance as well as risk and default management standards and practices."[14] To place the Nasdaq Clearing member default in context, it is important to remember that Nasdaq Clearing is a non-systemically important clearinghouse. During the first quarter of this year, Nasdaq Commodities default fund, where the default occurred, was sized at about $165 million and its Financial Markets default fund was sized at about $260 million,[15] or approximately two percent of OCC's default fund. When a CCP has a loss that exceeds 60% of its default fund, such an event raises tough questions about model risk, including lookback periods, changes in correlation, and close-out periods. OCC considers the risks presented in this scenario, and has features built into our approach to manage them including our membership standards and our incorporation of both concentration and liquidation risks into our margin models. Although the experience of Nasdaq Clearing can yield some important lessons learned (and Nasdaq immediately initiated an independent review to identify potential enhancements), it does not, in our view, raise fundamental issues about the clearing model itself. It does, however, remind all of us that we must be vigilant in assessing and managing risk.

We have divided our response to the recommendations in the Paper into two categories: 1) Governance Considerations and 2) Financial Resources and Optimizing the Incentive Structures of CCPs. The governance topics are further divided into Member Input and Transparency, and CCP Critical Decision Making.

Governance Considerations

Member Input and Transparency

OCC believes that strong and transparent CCP governance with robust member input on relevant risk issues is necessary to provide effective risk management. In this regard, we agree with the Paper that it is important to have governance practices in place that obtain and address input from a broader array of market participants on these issues. OCC has a multi-pronged approach to incorporating input from clearing members and other market participants. OCC has nine clearing member directors on its Board that represent 43% of aggregated margin risk and 49% of the aggregated default fund risk across all participant segments. The firms that the member directors represent

[12] European regulations provide that non-defaulting clearing member margin cash can be considered as a qualifying liquid resource. U.S. regulations strictly prohibit this practice, and as such OCC does not count this cash. If we were to count clearing member margin cash as a liquidity resource we would meet a Cover 2 standard in Europe.

[13] The OCC was the first CCP whose primary regulator is the SEC to have its Recovery and Orderly Wind-down Plan approved.

[14] The September 2018 bankruptcy of a direct clearing member of Nasdaq Clearing AB led to a 114 million euro loss (7 million euro loss to Nasdaq Clearing and a 107 million euro loss charged to the default fund).

[15] Source: Nasdaq Clearing's PFMI Quantitative Disclosures for the period January 1-March 31 2020.

also account for 70% of the options volume and 48% of the futures volume that OCC clears. In addition, OCC's Board-level Risk Committee consists of two clearing member directors, four public directors, one exchange director and one management director. We are in the process of revising OCC's Board Charter and Corporate Governance Principles with our Regulators to align with our By-Laws in requiring significant clearing member representation on both the Board and the Risk Committee, reflecting current practices.

Beyond the Board and its Committees, we have several additional venues through which we seek market participant input, including industry committees and roundtables where we share information and gather feedback. The Financial Risk Advisory Council (FRAC) is a forum for discussing proposed financial risk initiatives, backtesting, stress testing, and model changes with clearing members, participant exchanges and buy-side participants, with feedback being presented to OCC's Board-level Risk Committee. In response to the Paper's recommendations for further transparency related to CCP resilience, and to enhance its performance for both OCC and participants, we are adopting more formal processes for the FRAC to further facilitate industry input and understanding. In this spirit, we are also committed to continuing to increase direct buy-side participation in the FRAC to ensure we are gathering a broad set of inputs and enhancing transparency. We are also expanding the types of information shared and discussed with the FRAC to include default testing results. We believe that utilizing this forum to discuss such sensitive information is an important way to keep clearing members and their clients informed and to obtain their feedback on these risk-related matters.

In addition to the FRAC, OCC has an Operations Roundtable from which we receive input from clearing members on operational issues on a regular basis. Additionally, we conduct one-on-one meetings with clearing members and their clients, and engage in regular interactions with trade associations interested in issues relevant to the listed options and futures.

In response to the call by market participants for further transparency of CCP risk management frameworks, we will make publicly available on our website our relevant framework documents (upon approval of these documents by the SEC) including our: (1) Risk Management Framework; (2) Third Party Risk Management Framework; (3) Enterprise Risk Management Policy; (4) Operational Risk Management Framework; and (5) Margin Methodology. We believe

Market Participant Input

OCC's multi-pronged approach to incorporating input from clearing members and other market participants

Board of Directors and its Committees

Representation on the Board and its Committees provides input from OCC's clearing member directors and other market participants

Financial Risk Advisory Council

Forum to discuss and obtain feedback on risk-related matters with clearing members, participant exchanges and buy-side participants

Operations Roundtable

Provides OCC regular input from clearing members on operational issues that individually, and collectively, these documents will provide greater clarity as to OCC's operational and financial risk management practices and reflect OCC's commitment to greater transparency.

Recovery actions that could impact clearing members or their customers are established in OCC's Rules and By-Laws. Additionally, to promote further insight into our recovery and resolution practices, OCC has developed and will provide to market participants simultaneously with this paper the *OCC Recovery and Orderly Wind-Down Plan Participant Guide* to share enhanced details about what is (and is not) contained in our Recovery and Wind-down Plan and when and how tools within the Plan would be implemented.

We believe the ways in which we share information and engage market participants as described above demonstrate our commitment to operating transparently with our clearing members and other market participants to provide effective and efficient risk management and clearing services.

Given our governance and level of transparency, we are aligned with many of the Paper's recommendations in this area. There is, however, one recommendation we find concerning. We do not believe that CCPs should be required to obtain explicit pre-approval from all clearing members before making any rule or methodology changes. Rather, we believe that approval of rule and methodology changes lies with OCC's Board and the Risk Committee, which both have strong clearing member representation, after input from market participants at the FRAC and Operations Roundtable. Changes in rules and methodologies are further subject to approval by OCC's Regulators after a process, which includes public comment, transparency to the systemic regulator, and often a separate and specific advance notice filing. We further believe that in a situation leading up to and during a period that exhausts a CCP's prefunded financial resources, the CCP should work closely with their regulatory and resolution authorities and seek approvals as appropriate under their respective regimes.

CCP Critical Decision Making

In periods of market stress, it is vitally important that CCPs have robust governance, with strong clearing member input, when they need to make critical decisions on a timely basis. CCPs should have in place ex-ante default management procedures and recovery, and wind-down plans precisely because it is difficult to create a plan in the middle of a stress event, when it is of the utmost importance to execute effectively and efficiently, and respond quickly to circumstances on the ground. This includes how CCPs make determinations about clearing member assessments, the use of variation margin gains haircutting and partial tear-ups, the use of emergency powers, and the clearing of less liquid products.

Clearing member assessments

OCC concurs with the Paper's authors that CCPs should not have unlimited powers to assess clearing members once the pre-funded resources have been exhausted, and believes that CCPs should define both the level and frequency of assessment powers in their rulebooks so that each clearing firm can assess its potential exposure to the CCP. This provides needed certainty for clearing members. That being said, we do not believe that the cap on assessments should necessarily be at one times the clearing member's default fund contribution. OCC currently has clearing member assessments capped at two times the clearing member's default fund contribution in its Rulebook, an approach that is similar to European regulations awaiting final approval.[16]

Similarly, we do not agree with the Paper's suggested requirement for a clearing member vote for a second round of assessments within its aggregate assessment powers, as a CCP needs to be able to exercise its authority in the event of a credit loss in a prompt and effective manner, particularly in a stress situation. Today, OCC may call for more than one assessment, but these assessments cannot add up to more than the two times default contributions cap during OCC's defined cooling off period. An obligation to 'poll' clearing firms during

[16] In the event a proportionate charge is levied by OCC against clearing members' contributions to the default fund, an automatic minimum 15 calendar-day cooling-off period (rolling to a maximum of 20 days) commences, during which time the total proportionate charges that OCC may assess against the contribution of any particular clearing member cannot exceed an additional 200% of that clearing member's then-required contribution to the default fund.

a period of stressed financial conditions is inconsistent with operating in a prompt and effective manner. The need for timeliness is imperative in a stress period and CCP management needs a high level of confidence that previously agreed upon resources, as stipulated in it is Rulebook, will be available. Rather than holding a clearing member vote, CCPs should have in place a governance structure such that market participants have sufficient representation on CCP committees and boards, which have oversight of these decisions. As detailed above, OCC has such representation on its Board and its Committees.

Use of variation margin gains haircutting and partial tear-ups

We agree with the Paper's authors that recovery tools such as variation margin gains haircutting and partial tear-ups should be used only on a limited basis and with the strict governance to return the CCP to a matched book. We do not believe, however, that their deployment needs to be approved prior to use by the resolution or systemic risk authorities.

CCPs should have the authority to use any of the recovery tools as prescribed in their recovery and wind-down plans and rulebooks, which have been filed and approved by their regulator(s), after public comment. Those recovery tools should be deployed, as needed, by CCP management under the supervision of the risk committee and board.

Having said that, OCC has clear governance around the use of partial tear-ups.[17] Prior to using the partial tear-ups after one or two auctions of the defaulting member positions, OCC would first issue a notice for voluntary tear-ups. Clearing members who voluntarily agree to allow OCC to extinguish their positions could be compensated, to the extent possible, from the defaulting member's estate.

If clearing member or customer positions of a defaulted clearing member remain open after OCC has accounted for voluntary tear-ups, the Board may elect to extinguish (i) the remaining open positions, and/or (ii) any related open positions deemed necessary to mitigate further disruptions to the markets (affected by the remaining open positions) through partial tear-ups. In any such instance, OCC would promptly notify the SEC and the CFTC of a determination that partial tear-up will apply.

OCC's Risk Committee, which determines the appropriate scope of each partial tear-up, also exerts strong governance over their use. Each determination of the Risk Committee to use partial tear-ups would be: (i) be based upon then-existing facts and circumstances; (ii) be in furtherance of the integrity of OCC and the stability of the financial system; and (iii) take into consideration the legitimate interests of clearing members and market participants.

Clear limits over emergency powers

OCC concurs with the Paper's recommendation that there should be strong governance and clear limits over a CCP's emergency powers. Emergency powers and default management procedures are clearly defined in OCC's Rules and include prompt notification of regulators. This includes a transparent description in the Rules and By-Laws of the rights and obligations of OCC so that market participants are informed in advance of their participation in default management. Any changes to CCP rights and obligations must be approved by OCC's Board and its Regulators, through a rulemaking process that allows for public comment.

Clearing of less liquid products

OCC agrees with the Paper that, as a general rule, products subject to a clearing mandate should be liquid (with available prices and able to be risk managed). We do not, however, believe that products to be cleared always have to be liquid or that all novel and complex products have to be pre-approved by all clearing members given the significant representation of clearing members on OCC's FRAC, Risk Committee and the Board.

The exchange-traded products that OCC clears are listed on regulated U.S. exchanges (and therefore

[17] OCC uses partial tear-ups but does not use variation margin gains haircutting as part of its Recovery and Wind-down Plan.

reviewed and approved by market regulators) or are securities lending transactions involving the underlying assets associated with such products. The nature of listed derivative markets, however, makes it impossible for such products to always be liquid. For example, the further from the at-the-money listed option series one moves, the lower the market participant demand for, and market-maker provision of, liquidity. What makes these instruments suitable for CCP clearing is the fact that all such exposures may be hedged utilizing the same or a closely-related instrument.

Moreover, new products may not be liquid at the outset and this recommendation could be interpreted to preclude the clearing of new products, whose liquidity will develop over time. Our concentration and liquidation margin add-ons are important tools in prudently managing risks through product listing and beyond.

We believe that OCC's policies that require that any proposed new products that exhibit new, novel or complex characteristics or risks to be vetted by the FRAC and reviewed and approved by the Risk Committee and the Board, which have strong representation from clearing members, is the best way to ensure the launching of appropriate new products.

Financial Resources and Optimizing the Incentive Structures of CCPs

We agree with several of the Paper's recommendations related to financial resources. First, we concur that incorporating liquidity and concentration factors into the margin calculations and applying an appropriate margin period of risk are prudent standards that should be adopted by CCPs. We also agree that derivative CCPs should size the default fund to a 'Cover 2' standard using 'extreme but plausible' scenarios. Moreover, we believe that CCPs should have in place robust default management processes. All of these are part of OCC's approach to risk management.

OCC's views on the recommendations related to skin-in-the-game and other pre-funded resources, non-default losses, and compensation for clearing members are discussed below.

Skin-in-the-Game

We agree with the Paper's authors that CCPs should have meaningful skin-in-the-game. While in the U.S., neither the SEC nor the CFTC have explicitly required skin-in-the-game in their rules, OCC believes it is an important tool to align OCC's incentives with those of the broader industry to ensure effective risk management. While we agree with the benefit of skin-in-the-game we cannot support the level of skin-in-the game recommended in the paper.

Under OCC's Capital Management Policy, OCC provides two tranches of skin-in-the-game. The first is the amount of liquid net assets funded by equity above 110% of its target capital requirement, which must be utilized to offset the loss after utilizing the margin and default fund contributions of the defaulting clearing member. In addition, OCC will contribute the unvested funds held under its Executive Deferred Compensation Plan (EDCP), on a pro rata basis pari passu with non-defaulting clearing members' default fund contributions. We believe the inclusion of the EDCP unvested funds is unique among CCPs and that it is the most effective and direct way to strengthen the alignment of interests between management and clearing members.

In line with European regulatory standards, in response to industry calls for more meaningful levels of skin-in-the-game, and because the amount of skin-in-the-game above 110% of the target capital requirement is variable, we announced in August that we are seeking SEC approval to retain and allocate a persistent minimum amount of skin-in-game. This minimum amount of skin-in-the-game will further enhance our alignment with clearing members, as well as reduce the likelihood of a draw on the default fund and the resulting cost to clearing members. We have proposed a floor for OCC's level of persistent skin-in-the-game of $62 million in line with the European Market Infrastructure Regulation (EMIR) requirement of 25 percent of regulatory capital. OCC's Board has approved the minimum amount of skin-in-the game described above, and OCC is engaged with its Regulators to finalize a rulemaking to implement the plan, which will of course be subject to a public comment process.

While we agree with the need for a meaningful level of skin-in-the-game resources to help ensure alignment of interests in the management of risk between the CCP and the industry, we do not agree with the level of skin-in-the-game recommended in the Paper (i.e., 20 percent of the default fund). In our view, such a level is simply too high and would alter the overall CCP model of risk mutualization. OCC's default fund is approximately $10 to $12 billion; at 20 percent of the default fund OCC contribution of skin-in-the-game would be $2 to $2.4 billion. That contribution would make OCC a larger contributor than any of the clearing members to the default fund if a credit loss exceeded the pre-funded financial resources of the defaulting clearing member.

Having the CCP itself be the largest contributor in the event of a credit loss fundamentally shifts the CCP model from one that is based on a mutualized risk, to one in which the CCP serves as an insurance provider which is backstopped by mutualized risk. This would dramatically shift the risk management incentives and the willingness of clearing members to monitor and escalate concerns about other market participants and to support default management and recovery.

Second Tranche of Skin-in-the-Game

We agree that it may further align the CCP's interest with those of the clearing members for CCPs to put in place a second tranche of skin-in-the-game as OCC has done. As noted above, OCC has a second tranche of skin-in-the-game in place pari passu with the default fund contributions of the non-defaulting clearing members. We believe, however, that there should be flexibility with regard to the placement of the second tranche, and the relative size of the two skin-in-the-game tranches. CCPs should have the latitude to determine the level and placement of pre-funded resources that is most effective in achieving alignment with market participants.

Pre-funded Resources for Recapitalization

We do not agree with the recommendation in the Paper that resolution authorities (RAs) should require CCPs to set aside ex ante resources (e.g., issuance of long-term debt that could be bailed in) for recapitalization. A requirement for CCPs to essentially pre-fund capital replenishment, which is not required by the SEC nor the PFMIs, would increase the CCPs' operating costs due to the resulting negative carry cost. Under OCC's utility model, those higher operating costs would then

Two Tranches of Skin-in-the-Game

Under OCC's Capital Management Policy, OCC provides two tranches of skin-in-the-game. Skin-in-the-Game is an important tool to align OCC's incentives with those of the broader industry to ensure effective risk management.

1

The first tranche of skin-in-the-game is the amount of liquid net assets funded by equity above 110% of its target capital requirement, which must be utilized to offset the loss after utilizing the margin and default fund contributions of the defaulting clearing member. OCC is seeking regulatory approval to allocate a persistent minimum amount of skin-in-game in the amount of $62 Million.

2

OCC has a second tranche of skin-in-the-game in place. We will contribute the unvested funds held under our Executive Deferred Compensation Plan, on a pro rata basis pari passu with non-defaulting clearing members' default fund contributions.

be incorporated into the expense base, which is only recoverable through clearing fees and therefore would increase costs for market participants. This would amount to charging the industry to lock up funds for a highly unlikely event. Furthermore, requiring such leverage could impact a CCP's credit rating and its funding and capital costs.

Non-default Losses

We believe that CCPs should be responsible for most but not all non-default losses, supported by appropriately sized regulatory capital requirements. OCC maintains a target capital level approved by its Board so that OCC can continue operations and services as a going concern if non-default losses, including business, investment and operational losses, materialize.

For such losses, OCC would charge these as expenses against its capital. If such capital is depleted to the point specified in the Capital Management Policy, such losses would be covered by the 'operational loss fee' charged to clearing members. The Paper acknowledges that the market practice is to disclaim custodial and settlement bank liability, with which we agree. At OCC, losses incurred through the failure of a settlement bank or custodian bank currently can be charged against the default fund. Given regulation currently in the final stages of approval in Europe, we will continue to review evolving requirements and our approach.

Compensation of Clearing Members for Use of Recovery Tools

OCC supports compensation for market participants under the no-creditor-worse-off-than-under-liquidation (NCWOL) safeguard and through the recoveries from the defaulter's estate.[18] We currently do not, however, align with the Paper's recommendation for compensating clearing members beyond this for recovery tools such as assessments, variation margin gains haircutting, and partial tear-ups or for any resolution tools.

The use of the recovery tools is detailed in CCPs' rulebooks, which are consistent with CPMI-IOSCO guidelines and approved by the appropriate regulators. These tools would only be used in extreme circumstances and under strict governance as noted above to promote recovery and the continuation of the services of the CCP.

If clearing members were to be compensated with claims on future earnings or equity-like instruments for the use of these tools in recovery,[19] it could skew incentives to favor resolution over recovery. Having the clearing members receive such compensation could also decrease the likelihood of a sale of the CCP in resolution as firms may not want to invest in the CCP that has outstanding claims on future earnings. Similarly, compensation may adversely affect the efficacy of the resolution plan where participants are not incentivized to act with a focus on financial stability.

[18] If a default-related loss is charged to clearing members and subsequently recovered, OCC Rules provide for the compensation of the clearing members that were charged for the loss through a reverse waterfall.

[19] OCC is permitted under our Rules to reallocate losses associated with a partial tear-up amongst clearing members. While we do not agree with compensating clearing members related to the use of recovery tools, we will exercise the use of the tools in as fair a manner as possible by spreading the losses from the use of these tools among all clearing members.

As noted at the outset, CCPs have a long history of solid performance over the lifespan of their existence. While the fundamentals of clearing remain steady, there has been significant evolution of the risk management functions that CCPs bring to delivering their critically important services to the market. As the hub of market ecosystems, CCPs must necessarily have an eye toward supporting the market as a whole, balancing and optimizing incentives toward maximum stability, security and continued functioning of markets in regular times and particularly in times of stress.

Post-financial crisis reforms have been successful in enhancing already strong financial and operational resiliency of CCPs to unprecedented levels. All market participants benefit from these enhancements and CCPs will need to continue to evolve as markets do. It is important to remember when considering these issues that CCPs have varying structures, clear different product mixes, use different risk models and methodologies, and have differing risk profiles. It is critical that when considering CCP policy changes, consideration is given to the fact that CCPs are not all built alike, and that varying structures may lend themselves to varying approaches to achieve the same objectives. As a result, taking a 'one size fits all' approach to discussing CCP resiliency could lead to suboptimal outcomes for market participants.

All market participants have a shared interest and commitment in ensuring that we evolve to continue supporting our deep, well-functioning and secure markets. We are proud of the alignment of interest between management, clearing members and market participants, and take seriously the interests of the industry and regulators — both domestic and international — in enhancing CCP resiliency. OCC is committed to doing our part; we have adapted and continue to enhance our approach to fulfilling to new regulatory requirements, have carefully considered industry input on CCP issues and have made, and are making, a number of changes to adopt their recommendations in a thoughtful way for our particular structure. We look forward to the continued dialogue on these and related issues as we all work toward enhancing the markets for all investors.

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