PRIMER ON CCP CREDIT RISK MONITORING

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A CCP GLOBAL PAPER

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The Global Association of Central Counterparties

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CONTENT

LIST OF ABBREVIATIONS

bps	Basis Points
CCPs	Central Counterparties
CDS	Credit Default Swaps
CM	Clearing Member
CPMI	Committee on Payments and Market Infrastructures
DF	Default Fund
FMI	Financial Market Infrastructure
IM	Initial Margin
IOSCO	International Organization of Securities Commissions
LG	Letter of Guarantee
PFMI	Principles for Financial Market Infrastructures

1.INTRODUCTION

Recent market volatility and stresses, including those stemming from the COVID-19 pandemic, rising inflation, heightened geopolitical uncertainty or outright war, and banking turmoil have provided a series of tests on the centrally cleared model and posed stresses to market participants. Central counterparties ("CCPs") have demonstrated resilience during these market events as a result of their robust risk management tools. The purpose of this paper is to provide information on the existing practices of CCP credit risk management frameworks, with a focus on the monitoring mechanism.

The Committee on Payment and Settlement Systems (renamed as Committee on Payments and Market Infrastructures ("CPMI") in 2014) and the International Organization of Securities Commissions ("IOSCO") issued a principles-based framework, *Principles for Financial Market Infrastructures* ("PFMI")[1], which provides guidance for the risk management practices of Financial Market Infrastructures ("FMIs"), including CCPs. The implementation of these standards is strongest when it reflects the features, including risks and mitigants, that are specific to a CCP's unique characteristics. As such, CCPs have adopted tailored counterparty credit risk management frameworks that are suitable to the markets they serve and the products they clear, as well as the counterparties they face. Thus, this paper provides an overview of counterparty credit risk management practices generally and does not necessarily reflect the practices of all CCPs.

The PFMI define credit risk as "the risk that a counterparty, whether a participant or other entity, will be unable to meet fully its financial obligations when due, or at any time in the future." The PFMI define liquidity risk as "the risk that a counterparty, whether a participant or other entity, will have insufficient funds to meet its financial obligations as and when expected, although it may be able to do so in the future."[2] While credit and liquidity risks are distinct, there are often significant interactions between these risks, therefore, an effective credit risk management framework often intersects with the formulation and execution of policies governing collateral, investment, and liquidity management.

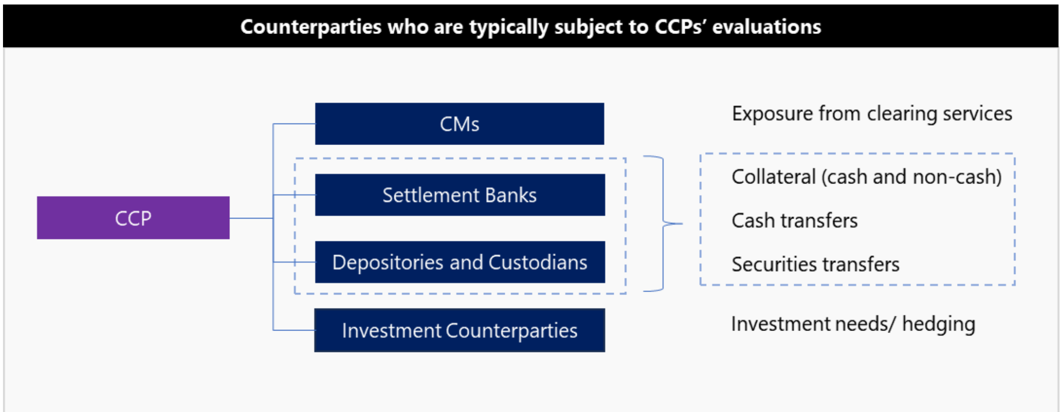
CCPs are exposed to counterparty credit risk in a number of ways in providing clearing services by becoming the buyer to every seller and the seller to every buyer in every centrally cleared trade. CCPs conduct ongoing credit monitoring on their counterparties, particularly clearing members ("CMs"), to make informed risk assessments and take necessary actions. By proactively responding to the deteriorating credit standings of CMs, CCPs can address portfolio-specific risks and confine their exposures within predefined tolerance levels, thus upholding market confidence and safeguarding the integrity of other CMs and ongoing market operations.

Furthermore, CCPs also encounter counterparty credit risk exposures from counterparties other than CMs (e.g., settlement banks, custodians, and depositories). The failure of these counterparties to meet their obligations could impact CCPs' operations and those of other parties that rely on their services. This underscores the importance of a comprehensive credit risk management framework to support CCPs' resilience.

[1] CPMI-IOSCO, Principles for Financial Market Infrastructures, Apr 2012 (link).

[2] CPMI-IOSCO, PFMI, Glossary.

2.SOURCES OF CREDIT RISK



In accordance with the PFMI, CCPs effectively measure, monitor, and manage their counterparty credit risk exposures to participants and those arising from their payment, clearing, and settlement processes.[3] CCPs engage in evaluations of their counterparties that are designed to ensure they continue to be well-positioned to fulfill their obligations. These evaluations may involve considerations such as profitability, leverage, liquidity, asset quality, and capitalization metrics. In conducting these evaluations, CCPs consider the various roles and relationships that counterparties may hold in relation to them, including via affiliates. This evaluation is crucial to effectively addressing the risk of a counterparty failing to meet its obligations to the CCP. Entities a CCP typically considers in these evaluations include:

- **CMs**: CMs guarantee the financial performance of any contracts or transactions they clear on behalf of themselves and their clients to the CCP.
- **Settlement Banks:** Settlement banks perform a critical role in the daily processing of cash transactions and the transfers of cash collateral for settlement purposes.
- **Depositories and Custodians**: Depositories and custodians perform a critical role of safeguarding cash and non-cash collateral on behalf of CCPs and CMs. This includes cash and non-cash collateral posted to CCP by its CMs to meet initial margin ("IM") and default fund ("DF") obligations. Custodians also provide securities services to process corporate actions and provide recordkeeping and reporting services, etc. They should allow prompt access to the assets when CCPs need to draw on them.
- **Investment Counterparties**: CCPs may face counterparty credit risk to investment counterparties where they invest their own cash or cash they receive from their CMs in high-quality liquid assets that have minimal exposure to market and credit risks (e.g., investments in the overnight repo market).

[3] CPMI-IOSCO, PFMI, Principle 4: Credit Risk.

3. CREDIT RISK MONITORING

3.1 Credit Risk Management Tools

In accordance with the PFMI, CCPs identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk management tools to control these risks.[4] To manage counterparty credit risk effectively, CCPs incorporate industry best practices that are tailored to the unique risks and counterparties they face. CCPs' counterparty credit risk management frameworks may include, but are not limited to, the following tools:

- Initial onboarding assessments with ongoing counterparty reviews;
- Daily credit monitoring and tolerance thresholds;
- Internal credit ratings; and
- Watch lists.

These tools, along with the financial resources CCPs collect from CMs, enable CCPs to effectively monitor and manage the credit risk they bear from their counterparties. While not the focus of this paper, the financial resources CCPs collect in the form of IM[5] and DF resources[6] from their CMs are important tools for mitigating credit risk, as they collateralize the exposures that CMs bring to the CCPs. The table below offers an overview of practices CCPs may employ for mitigating counterparty credit risk, but, as with CCPs overall risk management practices, they may not be universally applied and are tailored to a CCP's unique risk management need.

Initial and Ongoing Counterparty Reviews	CCPs perform assessments of new counterparties prior to entering into a relationship with them. CCPs evaluate potential counterparties' creditworthiness against criteria established by each CCP in line with its risk appetite. These criteria consist of various qualitative and quantitative aspects, which may include, but are not limited to, minimum capital and liquidity levels (with potential consideration of parental support in some cases), robust risk management capabilities, and proficient operational and managerial competence. While criteria generally cover similar areas across counterparties, specific expectations typically vary based on counterparty types. For example, the risk management capabilities needed of a CM, such as the ability to monitor the risks of accepting trades for clearing, are not relevant to the counterparty acting as a custodian. Certain types of counterparties, particularly CMs, may also be subject to on-site visits, enabling CCPs to gain deeper insights into the counterparties' risk management policies, procedures, as well as their unique risk profiles. CCPs may consider a counterparty's external credit rating as part of the onboarding assessment, but generally a CCP would not preclude a firm from acting as a counterparty based on an external credit rating alone. However, CCPs commonly require certain types of counterparties to maintain a minimum internal credit rating established by the CCP, as described below, to provide certain functions.

[4] CPMI-IOSCO, PFMI Principle 4: Credit Risk, Key Consideration 2.

[5] CCP Global, Primer on Initial Margin, Dec 2018 (link).

[6] CCP Global, Primer on Credit Stress Testing, Aug 2020 (link). This paper describes the stress testing frameworks used by CCPs to determine the DF sizing by assessing the stress losses from CM's credit exposures under extreme but plausible stress market conditions.

	In addition to completing credit risk assessments on new counterparties, CCPs also subject counterparties to ongoing reviews, including daily monitoring and regular assessments of counterparties assigned internal credit ratings. These ongoing reviews are designed to ensure a CCP is aware of any changes in its counterparties' credit profiles and that the CCP remains comfortable with its relationship to these counterparties.
Daily Credit Monitoring and Tolerance Thresholds	As described further below in Section **3.2**, CCPs conduct daily credit monitoring and reporting on their counterparties. This monitoring serves to identify items that may impact a counterparty's creditworthiness and is designed to ensure that these items are appropriately escalated within a CCP's governance arrangements. To support a CCP's daily monitoring practices, CCPs commonly employ tolerance thresholds and/or counterparty limits to manage the exposures they face from their counterparties. The primary function of these thresholds and limits is two-fold: i) to alert a CCP when a counterparty's exposure is approaching a predetermined level; and ii) to prevent the counterparty from amassing exposures in excess of the amount deemed appropriate by a CCP. If tolerance thresholds, and particularly, counterparty limits, are breached, this is escalated within a CCP's governance arrangements and further risk mitigating measures may be taken. Tolerance thresholds and/or counterparty limits are determined by each CCP considering its defined risk appetite and pursuant to its risk management policies. For example, in the case of CMs, tolerance thresholds and/or limits are commonly expressed in terms of IM or settlement variation, considering a given CM's typical activity and credit quality (e.g., as measured by internal credit rating). CCPs may also set the tolerance thresholds and/or limits based on notional exposures or hypothetical stress losses. Broadly, a CM's capital position also drives the amount of risk it may be permitted to take by a CCP. CCPs also typically impose counterparty limits on their exposures to non-CM counterparties, such as the maximum investment exposures to an investment counterparty. CCPs review tolerance thresholds and counterparty limits regularly and may do so more frequently if market conditions warrant or a counterparty's risk profile changes. CCPs would update these thresholds and limits where necessary.
Internal Credit Ratings	CCPs commonly use internal rating methodologies to conduct regular credit risk assessments of their counterparties. Given the diversity of credit profiles and various counterparty-specific factors that can influence an internal credit rating, CCPs design their own internal credit rating methodologies to account for the specific types of counterparties they face. These methodologies use both quantitative and qualitative information and typically apply different inputs and weights for those inputs depending on the counterparty types. Quantitative information may relate to a counterparty's profitability, leverage, liquidity, asset quality, and capitalization. Qualitative information may relate to a counterparty's operating environment, management and governance, and risk management practices. More details are described in Section **3.2**. CCPs continually monitor and assess the internal credit ratings of their counterparties and update these ratings, where necessary, based on information gained from daily credit monitoring and other means, such as updated quantitative (e.g., financial reports) or qualitative information.

	Notwithstanding this, counterparties internal credit ratings are reviewed on a regular basis.
Watch Lists	CCPs use watch lists to track the creditworthiness of counterparties with lower internal credit ratings or those counterparties that a CCP determines should be subject to enhanced monitoring. Counterparties that may be facing near-term credit, operational, business or financial issues may be added to a CCP's watch list. Counterparties that are placed on a watch list are subject to enhanced monitoring and may be subject to additional reporting or other actions as described in Section **3.3**. For example, additional reporting may encompass a counterparty providing daily or weekly net capital and/or liquidity reports to a CCP.

3.2 Daily Monitoring and Key Risk Indicators

In accordance with the PFMI, CCPs identify risk factors and monitor potential market developments and conditions that could affect the size and likelihood of their losses in the event of default by measuring and monitoring their credit risk exposures throughout the day.[7] CCPs' daily monitoring tools utilize inputs from a spectrum of quantitative and qualitative factors. Noteworthy and market-based information from these factors may be highlighted with the use of key risk indicator dashboards. The information gained through daily monitoring informs a CCP's overall view of a counterparty's creditworthiness.

When evaluating the creditworthiness of a counterparty, CCPs are mindful of the factors that underlie the shifts in risk indicators and that a change of one factor may not yield an immediate, direct impact on a counterparty's financial standing or overall credit quality. Therefore, alerts (e.g., key risk indicators) used as part of a CCP's daily monitoring trigger subsequent analysis rather than determining a singular action by the CCP. A significant focus for CCPs is affirming CMs are well-placed to meet their payment and settlement obligations, and therefore, further analysis may involve evaluating the counterparty's capitalization and liquidity to verify that appropriate capital levels and access to liquidity are maintained. Broadly, the circumstances surrounding an alert must be contextualized considering the counterparty's specific characteristics and prevailing market conditions, so that appropriate actions are taken based on existing facts and circumstances. CCPs employ their judgment, built on evaluations and extensive experience, to ensure a well-reasoned assessment of counterparty credit risks.

Below is a non-exhaustive compilation of key risk indicators that are commonly employed by CCPs in monitoring their counterparties creditworthiness:

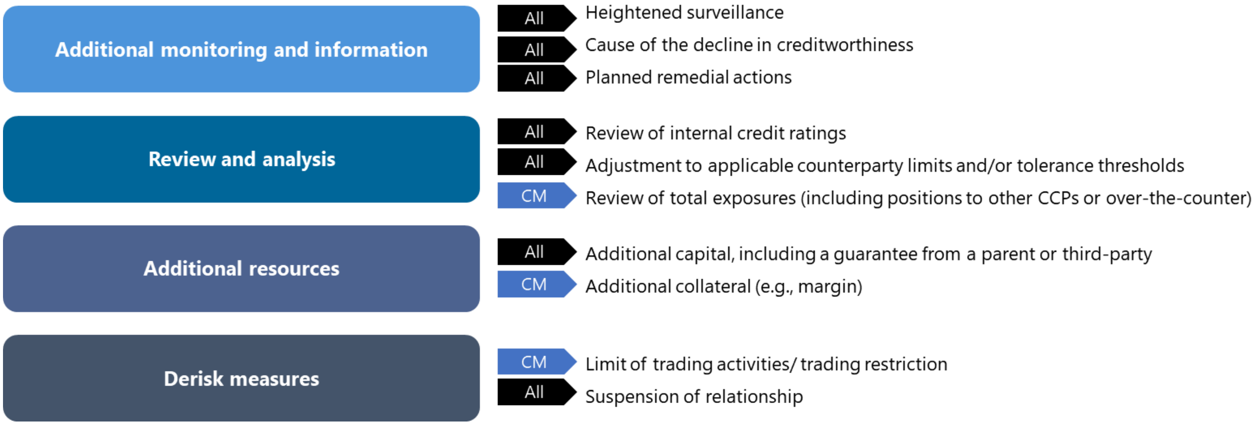
Financial Ratios	Financial ratios are used by CCPs to evaluate the financial health and creditworthiness of their counterparties, typically in terms of asset quality, profitability, leverage, liquidity, and capital adequacy. CCPs may require or request financial reports from counterparties on a regular basis and monitor their periodic financial releases to assess and track changes in financial performance.
Liquidity Resources	CCPs monitor a counterparty's liquidity positioning. In the case of CMs, this is particularly pertinent in affirming that they can satisfy their payment obligations relating to the contracts they clear. As such, CCPs consider the amount and type of liquid resources CMs maintain as well as their access to additional resources. This may include access through credit facilities and parental support (e.g., letter of guarantee or "LG").

[7] CPMI-IOSCO, PFMI, Principle 4: Credit Risk, Explanatory Note 3.4.15.

Share Prices	Where applicable, CCPs may also monitor the share prices of their counterparties to identify any material share price declines. While specific price drop thresholds are not universally established, CCPs may internally define a threshold that triggers additional analysis or monitoring.
Credit Ratings and Outlooks by External Rating Agencies	CCPs take varying approaches to considering external ratings within their specific credit risk management practices, particularly, as it relates to determining internal credit ratings. However, where applicable, CCPs monitor external rating agencies' ratings and outlooks on their counterparties.
Credit Default Swaps ("CDS") Spreads	A CDS spread, quoted in basis points ("bps") is the amount that a protection buyer needs to compensate a protection seller for the insurance against a potential default. Monitoring single-name CDS spreads of a counterparty may serve to assess the potential rise in default risk for an entity, provided the CDS markets and prices thereof are actively traded. In such cases, elevated CDS spreads typically correlate to heightened default risk. As such, shifts in CDS prices may be included in a CCP's monitoring of its counterparties.
Key News and Other Factors	CCPs may also conduct ongoing monitoring which encompasses macroeconomic and qualitative aspects related to their counterparties. Given the inherent subjectivity of qualitative evaluations, CCPs leverage their expert judgment in considering qualitative information and consider such information in the context of the counterparty's specific risk profile. Below is a list of other factors that CCPs may consider: - Financial and market trends, such as inflation; - Operating environment for a counterparty (e.g., overall banking system); - Counterparty's risk management practices, including risk management expertise and documentation; - Counterparty's operational resilience; - Counterparty's overall strategy and business model, particularly changes in these areas; - Counterparty's management and governance, such as changes in senior leadership and reorganizations; - Counterparty's reputation, such as any news related to malpractice, fines, and fraud; and - Nature of the stability and suitability (e.g., sanction related) of the counterparty's jurisdiction.

3.3 Escalated Actions

In accordance with the PFMI, CCPs identify sources of credit risk, routinely measure and monitor credit exposures, and use appropriate risk-management tools to control these risks.[8] When CCPs detect noteworthy changes in counterparty credit risk exposures that indicate a deterioration in a counterparty's creditworthiness, CCPs follow their established procedures for escalating the matter and taking the appropriate actions based on the facts and circumstances. A CCP's rules also generally grant them the authority to request additional information and take other actions to mitigate the risks concerned.



CCPs may take various actions to address a situation where a counterparty's creditworthiness is deteriorating. The specific actions taken are considerate of the counterparty's unique risk profile and the role it performs for the CCP, as well as the specific facts and circumstances surrounding the decline in the counterparty's creditworthiness. Apart from conducting additional monitoring, the following outlines a range of non-exhaustive actions that CCPs may take to address such a situation:

- Contact the counterparty and request additional information to understand the circumstances surrounding the decline in creditworthiness and any planned remedial actions;
- Adjust the counterparty's internal credit rating and applicable counterparty limits and/or tolerance thresholds; and
- Request additional capital, including a guarantee from a parent (e.g., LG) or from a third-party, such as a letter of credit.

With respect to counterparties that are CMs, CCPs may undertake a holistic review of the CM's total exposures, including customer and proprietary origins, as well as understanding any exposures that may be held at other CCPs or over-the-counter. Where a counterparty is a CM, a CCP may also request additional collateral (e.g., margin) or limit trading to those trades that are risk-reducing.

If a counterparty fails to take any actions that a CCP requires of it to address a decline in its creditworthiness, the relationship with the counterparty may be limited or suspended.

[8] CPMI-IOSCO, PFMI, Principle 4: Credit Risk, Key Consideration 2.

3.4 Review and Validation

CCPs establish and uphold a system characterized by robust governance and review mechanisms that are designed to ensure the effectiveness and suitability of their credit risk management frameworks. Broadly, a CCP's risk management framework, which encompasses its counterparty credit risk management practices, is subject to periodic review, typically annually. Such review is designed to ensure a CCP's risk management framework remains fit-for-purpose and acts as a means for a CCP to identify any potential enhancements. As described above, CCPs regularly review the material risks they bear from their counterparties as part of their ongoing counterparty credit risk management practices. The practices a CCP employs to review its counterparties on an ongoing basis also act as a means to affirm its practices continue to be appropriate. Any changes to a CCP's credit risk management framework would be subject to the CCP's defined governance arrangements.

4. CONCLUSION AND OUTLOOK

Building upon the guidance stated in the PFMI, CCPs have adopted tailored counterparty credit risk management frameworks that are most suitable to the markets they serve and the products they clear. CCPs incorporate industry best practices to monitor and manage the credit risk they bear from their counterparties. Through utilizing comprehensive practices and tools that leverage quantitative and qualitative factors, CCPs are able to proactively respond to any deteriorating creditworthiness of their counterparties and take appropriate actions based on existing facts and circumstances. Should a noteworthy shift in the creditworthiness of a counterparty be detected, the matter is escalated according to the established governance arrangements.

CCPs' counterparty credit risk management frameworks have yielded positive outcomes to date, including the resilience demonstrated by CCPs over the unprecedented volatility of recent years. However, CCPs recognize the importance of continuing to identify further improvements to enhance market resilience and stability and as such, regularly review their counterparty credit risk management frameworks to ensure they remain appropriate. This iterative process involves diligent reflection on lessons learned, ensuring the continual alignment and adequacy of their risk management frameworks with the market dynamics and the landscape they operate within.

5. ABOUT CCP GLOBAL

CCP Global is the global association for CCPs, representing 42 members who operate over 60 individual CCPs across the Americas, EMEA, and the Asia-Pacific region.

CCP Global promotes effective, practical, and appropriate risk management and operational standards for CCPs to ensure the safety and efficiency of the financial markets it represents. CCP Global leads and assesses global regulatory and industry initiatives that concern CCPs to form consensus views, while also actively engaging with regulatory agencies and industry constituents through consultation responses, forum discussions, and position papers.

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