Box 2: Practices of Central Counterparties for Managing Risks Not Associated with Member Defaults

1. Introduction

Following the publication of the main regulatory framework on the risk management of financial market infrastructures, *Principles for Financial Market Infrastructures* (PFMI) (CPMI and IOSCO, 2012), some financial authorities and international organizations have studied, established standards, and issued recommendations on risk management and control in Central Counterparties (CCPs). As stated in the PFMI, the goal is to have safe and efficient CCPs that contribute to maintaining and fostering financial stability and economic growth.

Examples of the topics studied include: 1) the review and analysis of practices in the handling and management of initial and variation margins, 2) the establishment of guidelines on the design and structure of recovery and resolution plans for CCPs, 3) the review of practices used to address scenarios with systemic incidences caused by procyclical events in margin management, and 4) the quantification of the equity levels of CCPs to support the materialization of risks other than member defaults, among others. This reflects significant progress in understanding the risks faced by CCPs, creating mechanisms to mitigate these risks, and establishing practices and plans to recover the viability of CCPs concerning exposures with clearing members.

However, while the PFMI address risks not associated with member defaults, there is a limited understanding of CCPs' current practices to address potential losses unrelated to counterparty and liquidity risks.

This box shows an overview of the practices of some CCPs to manage risks not associated with member defaults, such as business and operational risks. Additionally, it analyzes the risk management practices in Colombia, specifically those implemented by the Central Counterparty Clearing House of Colombia S.A. (CRCC in Spanish). Furthermore, this box complements the analysis presented in the article "Capital Requirements for Central Counterparties: An Analysis of the Colombian Case," published in the 2021 edition of the *Payment Systems Report*, which evaluated capital requirements for CCPs regarding risks not associated with defaults by clearing members.

2. Context

In line with the guidance of the PFMI, BIS, and IOSCO (2014), Wendt (2015), Wilkes (2020), and Mariño et al. (2020), among others, CCPs play a significant role in the security and development of financial markets by mitigating credit and liquidity risks in transactions they clear and settle. Therefore, it is essential to maintain the services provided by these entities, not only for the benefits they offer to the markets but also for the impact that the resolution or liquidation of one of these entities would represent in the markets, participants, and the financial stability of the jurisdictions where they operate.

In general terms, there are two scenarios in which a CCP might need to suspend its services and initiate a liquidation process. The first scenario occurs when its main clearing

members are declared in default, and the CCP's risk management model proves insufficient to cover the losses incurred in closing the open positions of the defaulted members, affecting the CCP's capital. The second scenario relates to issues in business management or the materialization of operational, legal, investment, and other risks that negatively affect the viability of the CCP.

As mentioned, progress has been made in regulation and in ongoing efforts to calibrate risk management models to avoid a potential financial impact of CCPs in the first scenario. In contrast, there has been less progress in understanding practices, analyzing, identifying, and quantifying impacts on CCPs, and ensuring transparency for participants and markets in the second scenario, where a CCP's continuity could be compromised. Additionally, there are various interpretations of the considerations raised by BIS and IOSCO in the treatment of these risks.

The overall framework for addressing the management of risks involved in the second scenario is provided by the PFMI, particularly Principles 3, 15, 16, and 17, which establish guidelines and considerations for assessing comprehensive risk management, overall business risk, custody and investment risks, and operational risks, respectively. Furthermore, the documents *Recovery of Financial Market Infrastructures* (BIS and IOSCO, 2014 [revised July 2017]) and the regulation on over-the-counter derivatives, CCPs, and trade repositories (EMIR) (European Parliament and Council of the European Union, 2012; European Commission, 2012) provide additional guidance to identify and quantify scenarios that could result in non-default losses for the CCPs. These documents are complementary and share a common goal: to strengthen the resilience of CCPs to deal with scenarios that threaten the viability of the company and avoid negative impacts on markets and the financial system. The Annex provides further detail on the main considerations observed in these documents.

Based on these recommendations, BIS and IOSCO conducted an exercise in 2023 to review the practices and strategies used by some CCPs to identify, quantify, and manage scenarios that could result in losses associated with the materialization of the mentioned risks. The main results are presented below.

3. Practices, Strategies, and Management of Risks Not Associated with Member Defaults

3.1 Identification and Quantification of Non-Default Losses from Clearing Members

As a result of this exercise, in August 2023, BIS and IOSCO published the document *Report on Current Central Counterparty Practices to Address Non-Default Losses*, which examines the practices currently employed by some CCPs to manage risks not caused by member defaults. Specifically, the report reviews the current practices implemented by CCPs to address potential non-default losses (NDLs) arising from clearing members.

Overall, it was found that CCPs exhibit a varied level of sophistication in how they define their strategies and plans to address NDLs. On the one hand, CCPs consider a variety of scenarios to identify potential sources of NDL separately, considering business, operational, investment, custody, and legal risks. On the other hand, some CCPs consider the possibility of loss given default episodes alongside NDL episodes and incorporate these scenarios into their recovery plans.

Additionally, it was found that, although CCPs mitigate non-default risks as part of their usual activities, some do not include certain scenarios in their planning. For example, they assume that regulated financial institutions or central securities depositories do not pose deposit or custody risks or that legal risks cannot cause an NDL, which could be inconsistent with the established standards (Table B2.1).

Regarding the quantification of NDLs, it was found that some CCPs conduct analyses to quantify potential NDLs and thus maintain adequate resources. These approaches include considering NDL scenarios separately for each relevant risk type, as well as analyzing the inherent challenges in quantification, such as the scarcity of historical data. Moreover, some CCPs consider lessons learned at other financial institutions when assessing NDL exposures, adapting best practices for risk assessment and Basel II frameworks. While considering the perspectives of other parts of the financial industry is helpful, there may be challenges in accurately assessing NDL risk on this basis and adapting industry-specific data sources to CCPs' markets and risk frameworks.

Table B2.1
Summary of the Main Recommendations on CCP Risk Management NOT Associated with Clearing Member Defaults

	PFMI (BIS-Iosco, 2012)	Recovery of financial market infrastructures (BIS-Iosco, 2014) (revised July 2017)	Regulation on over-the-counter derivatives, central counterparties and trade repositories (European Parliament and Council of the European Union, 2012).
Principle 3: Framework for the Comprehensive Management of Risks	• An FMI should have risk management policies, procedures, and systems that enable it to identify, measure, monitor, and manage the range of risks that arise in or are assumed by the FMI. Risk management frameworks should be subject to periodic reviews. • An FMI should identify scenarios that could potentially prevent it from providing its most important activities and services as a going concern and should assess the effectiveness of a full range of recovery or orderly wind-down options. • It should identify those risks that could materially affect its ability to operate or provide services as planned. Typically, these risks would include legal, credit, liquidity, and operational risks. An FMI should also consider other material and relevant risks, such as market (or price) risks, concentration risks, and general business risks, as well as risks that may not appear significant in isolation but may be material [...]	3.2.1 FMIs may be exposed to legal, credit, liquidity, general, custody, investment, and operational risks. The incidence of trading losses is often unrelated to a participant default and may crystallize over a very short period of time or over a much longer period of time.	Business risk refers to the risk that a CCP assumes due to its efficiency and the potential for changes in general business conditions that could adversely affect its financial condition as a result of a decline in its revenues or an increase in its expenses that would result in a loss to be charged against its capital. Since the level of business risk largely depends on the individual situation of each CCP and may arise from factors such as inefficient procedures, an adverse market environment, ineffective response to technological developments, or poor execution of business strategies, capital requirements should be based on a CCP's own estimates, subject to the approval of the competent authority. A minimum level should be introduced in order to ensure a prudent level of capital requirements.
Principle 15: General Business Risk	• An FMI should have robust control and management systems in place to identify, monitor, and manage general business risks, including losses from poor execution of business strategy, negative cash flows, or excessively high or unexpected operating expenses. • Business-related losses may arise from risks covered by other principles, for example, legal risk (such as legal actions challenging the FMI's custody arrangements), investment risk affecting the FMI's resources, and operational risk (in the event of fraud, theft, or loss). In these cases, the general business risk may cause an FMI to experience an extraordinary one-time loss rather than recurring losses. • General business risk refers to the risks and potential losses arising from the management and operation of an FMI as a business, which are not related to any default by a participant and are not separately covered by financial resources under the principles relating to credit or liquidity risk [...] • Once an FMI has identified and assessed its business risk, it should measure and monitor these risks on an ongoing basis and develop appropriate information systems as part of a robust business risk management program.	3.2.4 General business risk refers to risks and potential losses arising from the management and operation of an FMI as a commercial enterprise that are not related to participant default or separately hedged and includes any other potential impairment of the FMI's financial or capital position. Business-related losses may also arise from legal, custodial, investment, or operational risks. Any loss arising from business risk may materialize as an extraordinary one-time loss or as an ongoing loss and could therefore occur over a very short period of time or over a longer period of time. If general business risk is not managed, an FMI's business operations may be disrupted or threaten its long-term viability as a going concern.	The business risk capital requirements will correspond to the CCP's approved estimate and will be subject to a minimum amount equal to 25% of its annual gross operating expenses.

Table B2.1 (continuation)
Summary of the Main Recommendations on CCP Risk Management NOT Associated with Clearing Member Defaults

	PFMI (BIS-Iosco, 2012)	Recovery of financial market infrastructures (BIS-Iosco, 2014) (revised July 2017)	Regulation on over-the-counter derivatives, central counterparties and trade repositories (European Parliament and Council of the European Union, 2012).
Principle 16: Custody and Investment Risks	An FMI should safeguard its own and its participants' assets and minimize the risk of loss and delay in accessing those assets. investments from an FMI should be in instruments with minimal credit, market, and liquidity risks.	3.2.5 Investment risk is the financial risk an FMI faces when investing its own or its participants' resources, such as cash or other collateral. Investment risk could jeopardize an FMI's viability if it results in significant financial losses. For example, if an FMI were to invest, at the FMI's own risk, collateral by its participants in instruments subject to market or credit risk, and such risks were to materialize, financial difficulties could arise, and the FMI may be unable to meet the claims of participants seeking the return of collateral posted. Similarly, an FMI may be exposed to custody risk and could suffer losses on assets held in custody in the event of a custodian's (or sub-custodian's) insolvency, negligence, fraud, mismanagement, or improper administration, fraud, poor administration, or inadequate record-keeping.	The calculation method should use the risk weights established for investment companies and credit institutions in Europe as a benchmark.
Principle 17: Operational Risk	An FMI should identify credible sources of operational risk, both internal and external, and mitigate their impact by using appropriate systems, policies, procedures, and controls. Systems should be designed to ensure a high degree of security and operational reliability and should have adequate and versatile capacity. Business continuity management should aim for timely transaction recovery and fulfillment of the FMI's obligations, including in the event of a major or large-scale disruption.		A CCP should calculate its capital requirements for operational risk, including legal risk, using either the basic indicator approach or the advanced measurement methods provided for in Directive 2006/48/EC, which defines the minimum own funds requirements for operational risk for credit institutions.

Sources: Bank for International Settlements (BIS), European Central Bank, and ESMA. Table prepared by *Banco de la República*.

3.2 Financial Tools and Resources to Manage NDLs

A variety of tools and resources available to CCPs to address NDLs was observed. Available tools include equity, rule-based loss allocation[1], external financing, insurance, and capital replenishment. However, it was identified that there is no standard scheme for the use of resources; rather, there is a variety in the sophistication of risk management approaches among CCPs. Some rely on the minimum regulatory capital requirements (e.g., those established by the EU), while others conduct additional analyses to ensure the sufficiency of resources. CCPs also consider the need for insurance coverage, although the claims and payment process can take time.

Specifically, for each source of financial resources, the following was observed:

- *CCPs' Equity:* Some CCPs rely solely on the minimum regulated capital amounts, which may not be sufficient to implement comprehensive recovery plans. Additionally, there are differences in how CCPs calculate the necessary amount of equity to cover losses.

1 The allocation of losses to members due to the materialization of risks aims to make members jointly and severally liable for these losses; in most cases, they are of second order after insurance coverage.

- *Rule-Based Loss Allocation:* CCPs use rule-based loss allocation mechanisms for members to address losses associated with operational, legal, and business risks, in addition to custody and investment losses. On the other hand, clarity in describing how losses will be allocated and dedicated governance arrangements are essential for the effectiveness of these mechanisms and member acceptance.
- *External Financing:* CCPs consider various external financing sources, such as credit lines, debt or equity issuance, and intra-group loans. The availability and reliability of this financing may be affected by market responsiveness and the global financial situation.
- *Insurance:* Insurance is a tool commonly used by CCPs to cover losses associated with operational and legal risks. Regular review of insurance policies and a detailed understanding of contractual terms are essential to ensure adequate coverage.

3.3 Timeliness in the Use of Resources to Manage NDLs

Delays in access to financial resources arise from the unavailability of funds at the time losses materialize. For example, the use of insurance poses additional problems due to the time required for claims adjudication and payment. Similarly, during periods of stressed market conditions, the severity and consequences of liquidity gaps may increase while a CCP's ability to close these gaps may be reduced.

On the other hand, it was found that the CCPs employ a diverse combination of tools and resources to mitigate these risks, including prefunded own resources and committed credit lines. However, some CCPs still face challenges, such as the inability to access available tools or an exclusive reliance on central bank support to address liquidity gaps.

In addition to developing *ex ante* approaches to quantify potential NDLs and assess the sufficiency of resources, CCPs also take into account other considerations, as shown below.

3.4 Other Considerations in Managing NDLs

The report emphasizes that, to assess the effectiveness of their NDL management plans or strategies, CCPs must consider factors such as legality, due diligence, and continuous monitoring of third-party service providers, as well as the understanding and preparedness of participants in the processes and requirements activated during an NDL materialization scenario. Furthermore, according to the CPMI-IOSCO recovery guidelines, it is recommended to conduct periodic tests and reviews of recovery plans at least once a year to ensure their effectiveness. In this regard, some CCPs participate in crisis drills coordinated with multiple industry CCPs to address additional NDL scenarios and strengthen coordinated crisis management.

Additionally, effective governance and transparency in the planning and execution of strategies to address these types of losses are of utmost importance. Thus, CCPs must have clear and transparent governance structures that promote market security and efficiency, participant confidence, and overall financial system stability. To this end, CCPs must maintain documented processes, especially those related to decision-making during a crisis. Additionally, CCPs must provide participants with understandable information about the risks and costs associated with participation in the CCP. Prior disclosure of management frameworks, regulatory documents, tools used to address NDLs, and how losses would be allocated in different scenarios will allow participants to provide effective feedback and limit potential legal implications when applying or executing these mechanisms.

4. Analysis of the Colombian Case

In Colombia, the Financial Superintendency of Colombia (SFC in Spanish) requires financial market infrastructures to conduct a self-assessment of the PFMI as follows: "providing the review and self-assessment processes regarding compliance with the aforementioned principles. If applicable, they must determine the action plans to be followed. Such self-assessments must be conducted at least every three years and published on each entity's website" (2022). Additionally, the Central Counterparty Clearing House of Colombia (CRCC in Spanish), the only CCP operating in Colombia that offers clearing and settlement services for financial products through a novation mechanism, was certified in 2023 by the European Securities and Markets Authority (ESMA) as a third-country entity complying with the European Union's regulation on CCPs. These two conditions ensure that the CRCC adheres to the considerations established by BIS, IOSCO, and ESMA regarding the management of non-defaults risks from clearing members.

Furthermore, based on the CRCC's internal regulations, risk management model, corporate governance structure, and self-assessment of compliance with principles, the characteristics and tools available to the CRCC to mitigate risks that could likely lead to NDLs were determined. Below is a summary of the observed strategies and tools.

- *Identification, Quantification, and Management of Risks that Could Generate NDLs:* The CRCC identifies and evaluates general business risks, which are permanently monitored and managed. It establishes a policy to maintain net liquid assets funded by its equity at a minimum equivalent to the sum of (i) net liquid assets required to cover the liquidation or restructuring of its activities, (ii) net liquid assets required to cover specific equity ("skin in the game"), (iii) net liquid assets required to cover business risk, and (iv) net liquid assets required to cover operational risk. It also determines the sufficient net liquid assets to continue operating for the necessary time to achieve an orderly recovery or liquidation.

- *Financial and Tools Resources to Manage NDLs*: In addition to the mentioned net liquid assets, the CRCC has: i) overdraft lines granted by banks, ii) the ability to access central bank liquidity in Colombian pesos, iii) a fidelity and financial risks insurance policy, and iv) the company's bylaws establish a capital obligation for shareholders, whereby shareholders are obliged to subscribe for shares in proportion to their participation in the social capital when, by a legal norm or an order from a competent authority, a capitalization of the company is required.

- *Considerations regarding Custody and Investment Risks:* The CRCC holds its members' or third parties' assets in Centralized Securities Depositories (DCV and Deceval)[2], cash in Colombian pesos received as collateral in accounts at *Banco de la República*, and cash in U.S. dollars in an account at a correspondent bank. For investments of the cash collateral provided by members, the CRCC defines general policies and conservative investment criteria in its operational regulations, in line with its risk management strategy. Additionally, an investment policy approved by the Board of Directors of the CRCC was established for investments of its own assets, with compliance monitored by the Administrative and Financial Committee, which is responsible for defining policies, parameters, counterparties, eligible investments, and investment limits per issuer, counterparty, and financial asset for the CRCC's portfolio.

2 The central securities depositories, the Centralized Securities Depository (DCV) and Deceval are subject to the laws of the Republic of Colombia and are supervised by the Financial Superintendency of Colombia. Due to their characteristics, these entities have a sound financial structure and follow strict accounting practices and controls that adequately protect assets to mitigate any type of risk.

Finally, it is important to mention that the exercise conducted to validate the adequacy of the CRCC's own liquid resources, calculated based on European regulations, exhibited that the CRCC's equity would be sufficient to cover various non-default risks from clearing members.

In accordance with the results of the BIS-IOSCO study, there is an opportunity to explore some practices observed in other CCPs. For example, designing and evaluating scenarios that combine defaults by clearing members with the materialization of one or more risks that generate NDLs and establishing the corresponding tests to validate the adequacy of net liquid resources. It may also be helpful to discuss the advisability of incorporating practices such as rule-based loss allocation and prior disclosure to members of the management frameworks and tools used to address NDLs.

5. Final Comments

BIS and IOSCO have worked to guide the management of risks faced by financial market infrastructures, particularly CCPs. Significant progress has been made in managing risks related to defaults by clearing members, specifically counterparty and liquidity risks. However, business, operational, legal, custody, or investment risks have not seen the same level of development. Nevertheless, a variety of strategies, practices, and mechanisms for managing NDLs have been evidenced by the CCPs evaluated by BIS and IOSCO. Therefore, it may be necessary to undertake additional work on NDLs across FMI and to provide guidance on the treatment and implementation of the recommendations established regarding the overall business risk of PFMI.

In Colombia, the CRCC is considered systemically important as it is the only CCP operating in the country due to the variety of markets to which it provides central counterparty services and its contribution to mitigating counterparty and liquidity risks. Accordingly, any disruption of services could impact the normal functioning of payment systems and financial stability. The CRCC complies with the PFMI observance requirements required by the SFC and quantifies capital requirements to support NDLs based on parameters established in the European Union. However, the findings in the recent BIS-IOSCO study could be useful to explore some areas for improvement in the management of NDLs by the CRCC, such as the design of new scenarios, the exploration of new sources of liquidity, and the construction of tests to validate the adequacy of net liquid resources in the face of the new scenarios, among others.

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