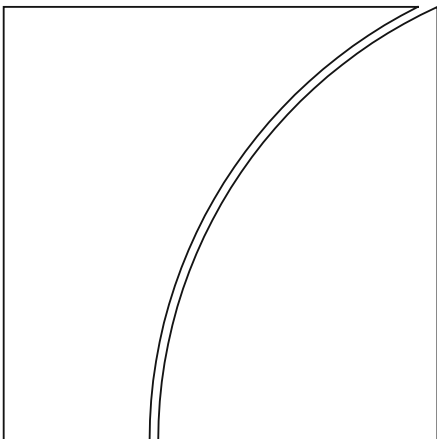


Basel Committee on
Banking Supervision
Committee on
Payments and Market
Infrastructures
Board of the International
Organization of Securities
Commissions



Final report

Transparency and
responsiveness of initial
margin in centrally cleared
markets – review and policy
proposals

January 2025



IOSCO

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Executive summary

In September 2022, the Basel Committee on Banking Supervision (BCBS), the Bank for International Settlements' Committee on Payments and Market Infrastructures (CPMI) and the Board of the International Organization of Securities Commissions (IOSCO) Margin Group ("the Margin Group") published the *Review of margining practices* ("the Phase 1 report").¹ Based on the analysis done by the Margin Group, and taking into account feedback from industry,² the report identified six areas for further policy work ("Phase 2"). As set out in the table below, responsibility for carrying out the Phase 2 work was allocated across a number of international groups, based on the expertise of group members. As noted in the table, the Margin Group has taken forward portions of two of the six themes: those related to additional transparency in centrally cleared markets and those focused on the level of responsiveness of cleared initial margin models.

Margining practices follow-up work

Table 1

Area	Centrally cleared markets	Non centrally cleared markets
Increasing transparency	BCBS-CPMI-IOSCO Margin Group	
Enhancing liquidity preparedness of market participants as well as liquidity disclosures	FSB – Standing Committee on Supervisory and Regulatory Cooperation – Working Group on Margin Preparedness	
Identifying data gaps in regulatory reporting	FSB – Standing Committee on Supervisory and Regulatory Cooperation – Working Group on Margin Preparedness	
Streamlining variation margin processes	CPMI-IOSCO Policy Standing Group	BCBS-IOSCO Working Group on Margin Requirements
Evaluating the responsiveness of initial margin models to market stresses	BCBS-CPMI-IOSCO Margin Group	BCBS-IOSCO Working Group on Margin Requirements

Drawing on the findings in the Phase 1 report and further information collected in Phase 2, the BCBS, CPMI and IOSCO published a consultative report titled *Transparency and responsiveness of initial margin in centrally cleared markets: review and policy proposals*³ in January 2024 ("the Phase 2 consultative report") consulting on 10 policy proposals (see Annex B for a list of the original proposals included in the Phase 2 consultative report). The consultation closed in April 2024 and this report sets out the Margin Group's final policy proposals.

Explanatory text further detailing these policy proposals and providing background context is set out in Section 4 of this report. In addition, BCBS, CPMI and IOSCO have issued a cover document to this final report which sets out a summary of consultation responses and the rationale for changes to the proposals in light of the feedback received.

¹ BCBS-CPMI-IOSCO, *Review of margining practices*, September 2022, www.bis.org/bcbs/publ/d537.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD714.pdf

² "Phase 1" of the work consisted mainly of collecting quantitative and qualitative data across the major entity types most affected by centrally and non-centrally cleared margin dynamics. Four different surveys were conducted and supplemented by public information where possible. In October 2021, the BCBS, CPMI and IOSCO published the *Review of margining practices: consultative report* based on the data collected. Written feedback was received from 33 entities or groups including, inter alia, CCPs, clearing members, clients or industry associations representing these categories, as well as academic institutions, consultancies, authorities and individuals. In addition to the written feedback, BCBS, CPMI and IOSCO held a series of virtual stakeholder outreach sessions in November 2021.

³ BCBS-CPMI-IOSCO, *Transparency and responsiveness of initial margin in centrally cleared markets: review and policy proposals* January 2024, www.bis.org/bcbs/publ/d568.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD757.pdf.

Policy proposal

1. Margin simulation tools should be made available by all central counterparties (CCPs) to all clearing members (CMs) and, where feasible, their clients, including prospective CMs and clients. Where necessary, this access may be paired with appropriate, non-disclosure agreements.
2. Margin simulation tools should include, at a minimum, functionality allowing the following:
 - a. The calculation of margin requirements for a number of the CCP's stress test scenarios, including key historical market stress events, for current and hypothetical portfolios.
 - b. In addition to baseline (or "core") initial margin, the incorporation of the CCP's main add-on charges that are systematically required across CMs.
CCPs should ensure that margin simulation tools reflect all material components of the underlying quantitative methodologies.
3. CCPs should make information about margin models available to CMs and, where feasible, their clients at a level that enables them to understand material aspects of the CCP's margin model and its approach to risk management. This information should include the following:
 - a. Explanations of, and rationale for, the model used (eg SPAN, VaR) and the calibration of key model parameters, including relevant components which affect the size and speed of margin requirement changes during periods of elevated stress (eg lookback period, liquidation horizon, confidence interval and model method-specific parameters).
 - b. The logic, applicable thresholds and descriptions of the data used for the calculation of margin add-ons.
4. CCPs should publicly disclose and describe the anti-procyclicality (APC) tools used in their model. CCPs should also publicly disclose and describe, at a high level, the model components that affect the level of model responsiveness.
5. Public quantitative disclosure (PQD) standards for CCPs should include the following additional breakdowns of margin-related data, wherever available:
 - a. Split between core initial margin and margin add-ons for total initial margin required (PQD item 6.1).
 - b. Results of backtesting of initial margin for the most relevant contracts per clearing service (PQD item 6.5).
 - c. Split by clearing service and currencies of the average and maximum of total variation margin paid to the CCP by participants (PQD items 6.6 and 6.7).
 - d. Measure of initial margin responsiveness for the most relevant contracts per clearing service as detailed in proposal 6 (new PQD item).
 All PQD data should be reported consistently and accurately.
6. CCPs should compute and disclose standardised measures of margin responsiveness, as described in the explanatory text. The disclosure should be included in the PQD framework for the most relevant contracts per clearing service (see proposal 5). CCPs should make available to regulators, upon request, the computed daily time series of the standardised measures for monitoring purposes.
7. CCPs should identify and define an internal analytical and governance framework, appropriate to their business lines and risk profile, for assessing responsiveness within the broader context of margin coverage and cost, with the framework and parameter choices communicated to relevant authorities. CCPs should seek input from market participants (eg through the risk committee) when designing or making material changes to the framework. The framework can be used by CCPs and relevant authorities to regularly monitor the performance of initial margin models and trigger the review of initial margin model parameters in case of need.
8. Where CCPs make use of discretion (eg expert judgment) to override model margin requirements, CCPs should:
 - a. Have in place clear governance procedures for using such discretion and undertake ex post reviews where such discretion has been applied. CCPs should seek input from market participants (eg through the risk committee) on the design of these governance procedures and the results of any ex post reviews. CCPs should clearly articulate and define the instances and areas where such overrides may be warranted (including clear definitions of the key decision-makers (eg those who can perform overrides) and the extent to which these adjustments are deemed permissible without, for example, requiring a material model change). It is similarly important that the CCP establishes clear guidelines as well as processes which enable the CCP to identify and monitor the overridden risk variable or model output.
 - b. Publicly disclose relevant information regarding the instances where discretion may be applied and the governance procedures used in the application of such discretion. CCPs should proactively share the governance procedures for the application of model overrides, in full, with relevant authorities.

-
- c. Communicate to relevant authorities engaged in the supervision or oversight of the respective CCP the aggregate size and duration of manual margin overrides, as compared with unadjusted initial margin requirements. The disclosure to authorities should be supported by a qualitative explanation of the reasons for the override.
 - d. Share with CMs subject to a model override a supporting qualitative explanation of the reasons for the override.
-
- 9. CMs should provide transparency to their clients regarding how their margins are calculated.
 - a. Where client margins are those charged by the CCP(s) (ie "passed through" by the CM), CMs should facilitate clients in accessing CCP model disclosures, including CCP-provided margin simulation tools. In addition, where clients clear at multiple CCPs via the same CM, CMs should, to the extent possible, disaggregate client margin requirements such that the client can attribute margin requirements to the originating CCP.
 - b. Where client margins deviate from those that would be charged by CCPs, CMs should: provide documentation to their clients containing a detailed description of how client margins are calculated which should include, where appropriate, the provision of their own margin simulation tools; disclose the rationale for, and magnitude of, those deviations to clients subject to such deviations; have an internal governance framework in place for determining when to charge client margins that deviate from CCP margins and; have an analytical framework in place for assessing the impact of such deviations in margins on their clients.
 - c. Without the need for a client request, CMs should provide appropriate notice to a client in cases when the calibration of client margins is modified, including how the triggers or thresholds for such calibrations are set and used, without prejudice to the need for CMs to be able to amend client margins at pace when required (eg during a stress).
 - 10. CMs should disclose relevant information to the CCPs of which they are members and relevant authorities. This should include information related to the exposures, potential losses and liquidity needs resulting from their participation in multiple CCPs.
-

The remainder of this report is organised as follows: Section 1 provides background on this work; Section 2 describes the scope of the Phase 2 policy work on initial margin responsiveness and transparency in centrally cleared markets; Section 3 describes the evidence collected in Phases 1 and 2 of this work; and Section 4 sets out the policy proposals.

The relevant standard-setting bodies will consider how best to implement the proposals.

1. Introduction

1.1 Background

1.1.1 March 2020 market turmoil

The Covid-19 market turmoil of March 2020 was the most significant test of the resilience of financial markets since the Great Financial Crisis (GFC) of 2007–09. Financial markets generally proved resilient, with no widespread concerns about counterparty credit risk. During the period of high market volatility in March 2020, large increases in aggregate margin requirements were seen in both centrally and non-centrally cleared markets. The Covid-19 pandemic and its market impact thus presented a real-world test of derivatives and securities markets' operations in the context of this episode's broader liquidity pressures.

The Margin Group was established by the Basel Committee on Banking Supervision (BCBS), the Bank for International Settlements' Committee on Payments and Market Infrastructures (CPMI) and the Board of the International Organization of Securities Commissions (IOSCO) in conjunction with the Financial Stability Board (FSB) work programme on non-bank financial intermediation (NBF). The objective was to examine whether – and, if so, to what extent – March 2020 margin calls were unexpectedly large in centrally and non-centrally cleared derivatives and securities markets. The analysis encompassed both initial margin (IM) and variation margin (VM), as well as centrally and non-centrally cleared markets including clearing member (CM)-client dynamics, transparency in margin practices, predictability of margin calls and market volatility. It also considered the preparedness of market participants to meet margin calls and the availability of each jurisdiction's regulatory data.

In October 2021, the Margin Group published *Review of margining practices: consultative report* (the "Phase 1 consultative report") which included data and related analysis on cleared and variation margin during March 2020.⁴ This report sought comment on this initial analysis, including key findings, and proposed next steps. To support this work, four detailed surveys were issued to: (i) central counterparties (CCPs); (ii) CMs and broker-dealers ("intermediaries"); (iii) other market participants active in global centrally and non-centrally cleared derivatives and securities markets ("clients"); and (iv) regulatory authorities.⁵

In September 2022, the Margin Group published *Review of margining practices* (the "Phase 1 report")⁶ summarising data and key findings and confirming the need for further margin work on policy proposals under six separate themes. The Margin Group then commenced work on two of these six policy themes: transparency in the context of cleared IM and issues related to the responsiveness of cleared IM.

The Margin Group's consultative report titled *Transparency and responsiveness of initial margin in centrally cleared markets: review and policy proposals* published in January 2024 (the "Phase 2 consultative report")⁷ set forth 10 policy proposals related to these two themes (see Annex B in this report).

⁴ BCBS-CPMI-IOSCO *Review of margining practices: consultative report*, October 2021, www.bis.org/bcbs/publ/d526.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD686.pdf.

⁵ BCBS-CPMI-IOSCO, *Review of margining practices: consultative report*, October 2021, at pp 1-2. These surveys were used to collect quantitative and qualitative data across major entity types most affected by centrally and non-centrally cleared margin dynamics and were supplemented by public information where possible. Information gathered through the CCP survey covers the vast majority of CCPs and is therefore a reasonable indication of the overall market, while the coverage of responses to the other surveys is more limited and represents only a small sample of market participants or jurisdictions.

⁶ BCBS-CPMI-IOSCO, *Review of margining practices*, September 2022, www.bis.org/bcbs/publ/d537.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD714.pdf.

⁷ BCBS-CPMI-IOSCO, *Transparency and responsiveness of initial margin in centrally cleared markets: review and policy proposals*, January 2024, www.bis.org/bcbs/publ/d568.pdf and the IOSCO website at <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD757.pdf>.

1.1.2 2022 elevated volatility in commodities markets

The Russia-Ukraine conflict in February 2022 resulted in a further period of elevated market volatility. Unlike in the 2020 event, market impacts were felt in a smaller set of derivatives products, primarily those relating to commodities such as energy and agricultural goods. In some of these markets, price moves were extreme, and the IM requirements imposed by CCPs increased rapidly in response.

The Margin Group examined this event as a further case study on how margining practices in centrally cleared markets respond to extreme bouts of market volatility. Its analysis was based on (i) a mainly qualitative international survey of 12 CCPs that clear commodities derivatives (“commodities CCPs”) and (ii) a workshop, held jointly with the FSB, to gather the perspectives of end users of commodities derivatives, such as commodities trading houses. The findings were set out in *Margin dynamics in centrally cleared commodities markets in 2022* published in May 2023 (“the commodities report”).⁸

The findings of this CCP survey generally supported the conclusions of the Phase 1 report in relation to current margining approaches across the international CCP population. The survey showed that, in general, the commodities CCPs surveyed have approaches that are designed to respond to elevated volatility and that can, if necessary, be adapted during stress events (for example, through the use of model overrides or the broader use of discretion). In addition, CCPs are sensitive to the stresses that margin can place on market participants, with many having measures which can help mitigate the procyclicality of margin calls, whether through hard or soft targets for maximum IM increases and/or through one or more anti-procyclicality (APC) tools embedded in the model. These tools, when used, are balanced with other important risk management factors, such as ensuring adequate coverage of counterparty credit risks through the economic cycle. The Phase 1 report found considerable variation in practices in this regard.

The end user workshop similarly reinforced various themes highlighted in the Phase 1 report; in particular, clients of CMs expressed concerns about the transparency and predictability of margin changes. These observations also complement the FSB report *The financial stability aspects of commodities markets*⁹ which, drawing on the same workshop evidence (as well as other data sources), highlighted the potential implications of the margin dynamics seen in 2022 for end users’ hedging strategies and market behaviour.

The findings in these reports have helped inform the general policy development work, especially in relation to evaluating the responsiveness of IM models and enhancing the transparency of margin requirements in centrally cleared markets.

1.2 Margining practices

As above, this report and the Margin Group’s Phase 2 work focus on margining practices in centrally cleared markets. “Margin” is the term used to describe cash and non-cash collateral collected to protect against current or future risk exposures resulting from market price changes or in the event of a counterparty default. Two main categories of margin, variation and initial margin, are used in both centrally and non-centrally cleared markets to cover different aspects of risk exposure.

1.2.1 Variation margin

Variation margin (VM) represents funds that are collected and distributed in order to extinguish current exposures resulting from changes in market prices that have already occurred. In derivatives markets, VM

⁸ See BCBS-CPMI-IOSCO, *Margin dynamics in centrally cleared commodities markets in 2022*, May 2023, www.bis.org/bcbs/publ/d550.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD735.pdf.

⁹ See Financial Stability Board, *The financial stability aspects of commodities markets*, February 2023, www.fsb.org/wp-content/uploads/P200223-2.pdf.

is typically collected and paid out in cash.¹⁰ VM is calculated and called regularly by marking open positions to market. This process involves establishing a fair market price for a given position, calculating whether each position has made a loss (or a profit) and paying (or receiving, for derivatives positions) VM sums to (or from) the CCP or bilateral counterparty. VM payments are typically made at least once daily but can be made more frequently on an intraday basis. As the Phase 1 report indicated, gross VM calls were higher on an absolute scale than IM during the period February-April 2020.¹¹

1.2.2 Initial margin

Initial margin (IM) is collected to cover potential changes in the value of each participant's position – the potential future exposure – over an appropriate closeout period in the event that the participant holding the position defaults. IM typically comprises a "core" IM component, which is associated with market risk, and "add-ons", which represent margin designed to cover other risks (eg liquidity or concentration risk). Typically, it is possible to satisfy IM requirements with a mix of cash or non-cash collateral, with the non-cash portion often consisting of highly liquid assets such as sovereign bonds. As the Phase 1 report indicated, IM increased substantially during the period February-April 2020,¹² with the use of APC measures and other tools helping to dampen IM responses relative to market volatility.¹³

1.2.3 Role of a CCP

For centrally cleared transactions, a CCP interposes itself between counterparties to a trade, becoming the buyer to every seller and the seller to every buyer and thereby ensuring the performance of open contracts. CCPs have a broad set of tools for managing risk, processing default events and assuring their continued operation during times of market stress.

Post-GFC, reforms explicitly sought to increase the role of CCPs by mandating and incentivising central clearing of over-the-counter (OTC) derivatives activity, and – by design – these reforms have greatly increased the systemic importance of CCPs.¹⁴ The reforms included work on enhancing the robustness of CCPs, most notably through the CPMI and IOSCO's publication in 2012 of the Principles for Financial Market Infrastructures (PFMI). The PFMI were also the subject of further work, with the publication in 2017 of additional guidance on the principles and key considerations in the PFMI regarding financial risk management for CCPs ("the CCP resilience guidance").¹⁵

Although the tendency of IM (and other risk-sensitive protections) to increase as volatility increases is expected and typical, the PFMI state that to the extent practicable and prudent, CCPs' IM models should limit the need for destabilising, procyclical changes.¹⁶ The PFMI also include guidance on how CCPs should manage the procyclicality of their margin arrangements.¹⁷ The CCP resilience guidance

¹⁰ Given the short settlement cycle, securities CCPs often collect VM but do not pay it out, as final settlement is at the trade execution price rather than the current market value. Instead, any VM collected is returned as part of the settlement process.

¹¹ BCBS-CPMI-IOSCO, *Review of margining practices*, September 2022, p 14, Figure 8

¹² BCBS-CPMI-IOSCO, *Review of margining practices*, September 2022, p 12, Figure 5.

¹³ BCBS-CPMI-IOSCO, *Review of margining practices*, September 2022, p 18 et seq.

¹⁴ See BCBS-CPMI-FSB-IOSCO, *Incentives to centrally clear over-the-counter (OTC) derivatives*, November 2018, www.bis.org/publ/othp29.pdf.

¹⁵ See CPMI-IOSCO, *Resilience of central counterparties (CCPs): further guidance on the PFMI – final report*, July 2017, www.bis.org/cpmi/publ/d163.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD539.pdf.

¹⁶ See CPSS-IOSCO, *Principles for financial market infrastructures*, April 2012, Principle 6, Key Consideration 4 (CPSS-IOSCO (2012a)).

¹⁷ Paragraph 3.6.10 of CPSS-IOSCO (2012a, p 53) states that a CCP "should appropriately address procyclicality in its margin arrangements. In this context, procyclicality typically refers to changes in risk-management practices that are positively correlated with market, business, or credit cycle fluctuations and that may cause or exacerbate financial instability."

expands on this, stating that a CCP “should develop appropriate methods or tools for mitigating the potential for destabilising, procyclical changes arising from its margin system”.^{18,19}

In response, CCPs have developed various approaches to mitigating the risk of procyclicality in their margin models. Some CCPs use explicit APC controls and frameworks, with some jurisdictions mandating the use of APC measures. Other CCPs do not use explicit tools but, in other ways, have implicitly built measures of or controls on procyclicality into their models or risk management policies.²⁰ Some CCPs use discretion as an APC tool through various margin overrides (eg a precautionary increase in IM before an expected stress period, such as an upcoming election or vote, in order to mitigate liquidity demand when the stress period actually occurs).

2. Scope of the work

2.1 Evaluating the responsiveness of centrally cleared IM models to market stresses

The work on IM responsiveness in centrally cleared markets has sought to better understand CCP margin models’ responsiveness to volatility and other market stresses, including the effects of this responsiveness; with this understanding, the Margin Group has worked to identify appropriate ways to analyse, compare and set baseline expectations for procyclicality. It has also examined clearing members’ practices when setting IM requirements for clients, as well as the transparency of these practices. This work has included analysis of how to effectively mitigate procyclicality, as well as how to balance this mitigation against the potential trade-offs with other goals of centrally cleared margin systems, such as appropriate coverage levels and the cost of required collateral across the business cycle. This work has included:

1. conducting a stocktake of margin model governance processes with respect to model review, model recalibration and the use of discretion;
2. considering tools for analysing, comparing and setting baseline expectations for procyclicality in various settings for both CCPs and CMs, using an “outcomes-based” approach rather than a “prescriptive-based” approach (eg informative baseline expectations and not universal hard thresholds for procyclicality measures); and
3. reviewing both CCP and CM margin model characteristics associated with market risk and other margin features that might contribute materially to margin responsiveness; this review included the consideration of margin add-ons.

Based on the above, potential policy recommendations were evaluated for the following areas:

- additional guidance/recommendations for CCP and CM governance processes;

¹⁸ Paragraph 5.2.43 of CPMI-IOSCO (2017). Further, Paragraph 3.6.10 of CPSS-IOSCO (2012, p53) states “...in a period of rising price volatility or credit risk of participants, a CCP may require additional IM for a given portfolio beyond the amount required by the current margin model”, and also states: “To the extent practicable and prudent, a CCP should adopt forward-looking and relatively stable and conservative margin requirements that are specifically designed to limit the need for destabilising, procyclical changes.”

¹⁹ See CPSS-IOSCO (2012a, p 54). See also CPMI-IOSCO (2017, pp 7–8), which includes further guidance on procyclical changes, including the requirement to conduct periodic assessments of any destabilising, procyclical changes. The PFMI also state that an FMI (such as a CCP) should define stable and conservative collateral haircuts, calibrated to include periods of stressed market conditions. The PFMI provide that a CCP’s margin system component be designed to ensure that margin levels are “commensurate with the risks and particular attributes of each product, portfolio, and market” served by the CCP (CPMI-IOSCO (2017, paragraph 5.1.2, p 27)).

²⁰ For example, through the use of volatility-averaging techniques, the selection of lookback periods for volatility scaling and other model calibration exercises.

- additional disclosures or information/tools provided by CCPs and CMs to relevant authorities and other stakeholders; and
- recommendations to better understand and measure the responsiveness of margin models and evaluate the effectiveness of a given APC tool (mindful of the heterogeneous nature of CCP products and markets) for both CCPs and CMs.

2.2 Increasing the transparency of IM requirements in centrally cleared markets

The work on the transparency of IM requirements in centrally cleared markets²¹ has considered potential policy proposals and/or recommendations across a set of perspectives, including transparency to the public, to relevant authorities and/or to specific participant categories (including clients, CMs, third-party providers and other relevant stakeholders). It has considered:

1. the provision by CCPs of improved forward-looking tools for CMs and clients to enhance understanding;
2. enhanced disclosure by CCPs of backward-looking model performance indicators;
3. the quality and content of relevant existing disclosures on model performance indicators, eg existing PQD data fields on margin models and breaches/coverage, to identify the most effective extensions;
4. enhanced disclosure by CCPs of model design choices; and
5. the role that CMs can play in facilitating transparency for their clients in how they choose to pass through CCP demands, as well as factors behind any discretion used in CM-determined margin add-ons.

3. Evidence collected

3.1 Phase 1 findings relevant to responsiveness and transparency

In Phase 1 of this work, the Margin Group conducted four detailed surveys: (i) a survey of CCPs; (ii) a survey of CMs/broker-dealers (“the intermediaries survey”); (iii) a survey of other market participants active in global cleared and non-centrally cleared derivative and securities markets (“the client survey”); and (iv) a survey of/data collection from relevant authorities (“the authorities survey”). The Margin Group also held three industry roundtables with representatives from different client sectors. While the coverage of responses to the CCP survey gives a reasonable indication of the overall market, responses to the intermediaries, client and authorities surveys represent only a sample of market participants or jurisdictions.

The analysis in the Phase 1 report was subject to a formal consultation, which included written feedback and a series of virtual stakeholder outreach sessions.²²

²¹ It should be noted that here the primary focus of the work has been on derivatives markets.

²² A summary of the feedback is available on the BIS website (www.bis.org/bcbs/publ/d537_feedback.pdf) and the IOSCO website (www.iosco.org/library/pubdocs/pdf/IOSCOPD714-feedback-statement.pdf). Where respondents did not expressly request otherwise, the written comments are available on the BIS website (www.bis.org/bcbs/publ/comments/d526/overview.htm) and the IOSCO website (www.iosco.org/publications/?subsection=public_comment_letters).

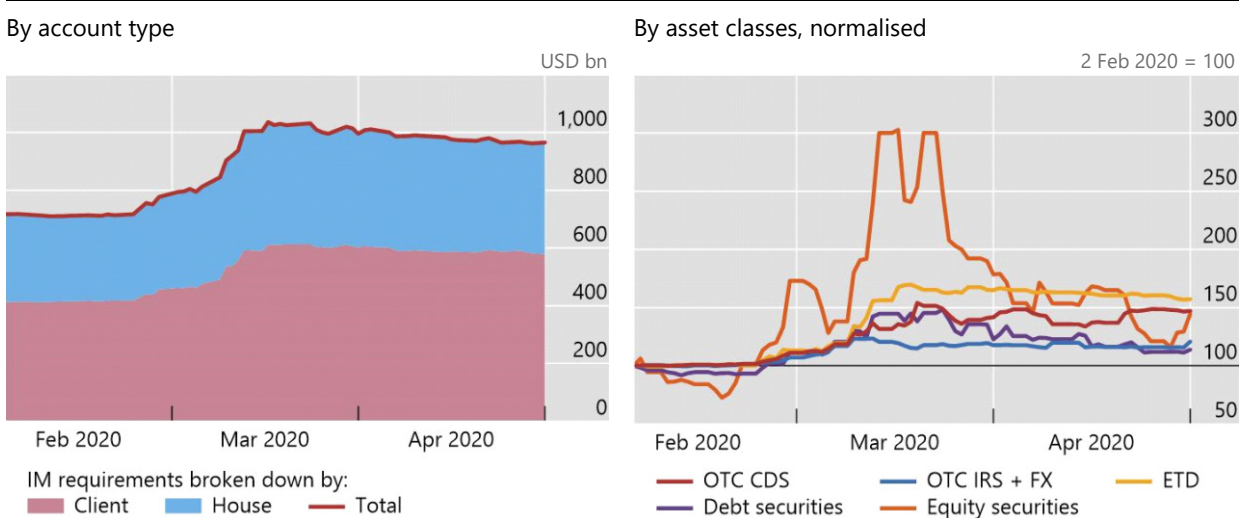
3.1.1 Drivers of IM calls and assessing the responsiveness of IM models

The Margin Group’s Phase 1 analysis investigated the drivers of IM calls during the early Covid period. The overall increase in IM requirements was driven by a number of factors, including trading activity, changes in volatility, and models reacting to market stress. Though differences in margin responses across asset classes could be explained largely by differences in volatility in the underlying products in those asset classes, the scale of the response to volatility also depended on model design choices, including how conservative margin requirements were in less volatile times. Accordingly, in order to assess the responsiveness of IM models, the Phase 1 report assessed changes in CCPs’ margin rates and changes in IM levels in Q1 2020 and compared those changes against a corresponding measure of volatility.²³

As a brief overview of these changes, total IM required as reported by CCPs increased by approximately \$300 billion (40%) between the end of February and mid-March 2020. Both house and client accounts saw similar percentage increases in centrally cleared IM, although the size of the increase differed by asset class (Graph 1). Required IM for CCPs clearing exchange traded derivatives (ETDs) – which account for 46% of total required IM – increased by 62% and represented roughly two thirds of the total increase for all asset classes. IM collected by CCPs clearing cash equities increased by the most in relative terms (>300%), while CCPs clearing over-the-counter interest rate swaps (OTC IRS) and foreign exchange (FX) products saw the smallest relative increase, approximately 20%.

Central counterparty IM required

Graph 1



ETD = exchange traded derivatives; OTC CDS = over-the-counter credit default swaps; OTC IRS + FX = over-the-counter interest rate swaps and foreign exchange.

Source: IOSCO Financial Stability Engagement Group’s Data Working Group survey of CCPs.

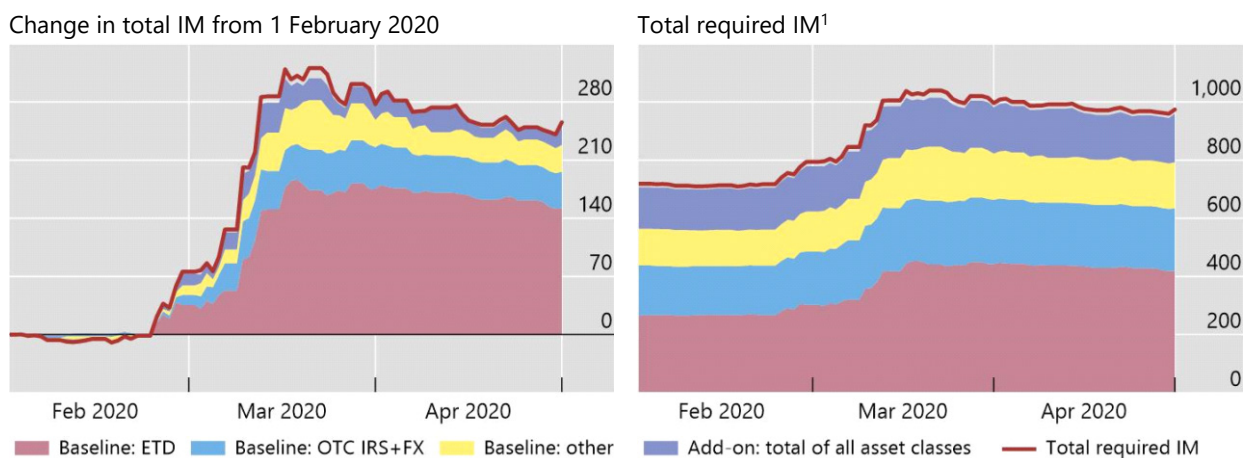
The majority of the increase in centrally cleared IM requirements was driven by the core component of IM models, which captures changes in portfolios’ market risk, rather than margin add-ons (Graph 2). Decomposing changes in total centrally cleared IM requirements into a “core” model component and the contribution from margin add-ons (which are designed to cover other risks, such as liquidity and concentration risk) show that only around 10% was driven by margin add-ons (possibly due to increases in CCP estimates of liquidity or concentration risk). The rest was driven by the core component with, as noted above, the majority of that increase driven by ETD core IM requirements.

²³ In the Phase 1 analysis, volatility in the largest single risk factor (or a group of highly correlated risk factors), as identified by the relevant CCPs, was used as the relevant measure of volatility.

Total required CCP IM

In billions of US dollars

Figure 2



ETD = exchange traded derivatives; OTC IRS+FX = over-the-counter interest rate swaps and foreign exchange.

¹ While the contribution from core models is shown separately for some asset classes, add-ons are shown as a total across all asset classes.

Source: IOSCO Financial Stability Engagement Group's Data Working Group survey of CCPs.

Parallel to this, the size of VM calls was substantially higher during the March – April 2020 time period.²⁴ CCPs had excess collateral posted, as a percentage of total required IM, across most asset classes during March 2020.²⁵

The analysis represented an initial “proof of concept” quantitative assessment of IM responsiveness and, accordingly, Phase 2 work explored how such an assessment could be refined and used more widely by relevant authorities and market participants.

3.1.2 CCPs' approaches to APC

Many CCPs reported in the Phase 1 survey that they have no formal APC framework, though many of those same CCPs stated that they do use measures they consider to be APC-related tools; a number of the respondents are required to include at least one explicit APC measure in their margin model framework. The majority of CCPs reported using at least one APC tool in their margin models, thus sometimes exceeding regulatory requirements. Similarly, the commodities report highlighted that CCPs are sensitive to the stresses that margin can place on market participants, with many having measures which can help mitigate the procyclicality of margin calls. However, there are varying approaches to CCPs' internal monitoring of margin responsiveness. Approximately 40% of CCPs surveyed in Phase 1 reported establishing an internal “risk appetite for APC”, typically expressed as an upper bound for increases in IM over a time period measured in days. Some – but not all – of the CCPs surveyed for the commodities report noted having similar hard or soft internal targets for maximum IM increases. Phase 2 work further explored the approaches CCPs take to assessing the responsiveness of their own models and assessed the potential benefits of CCPs defining and, where appropriate, disclosing governance frameworks for assessing responsiveness and the use of specific APC tools.

²⁴ See BCBS-CPMI-IOSCO, *Review of margining practices*, September 2022, pp 9–11.

²⁵ See BCBS-CPMI-IOSCO, *Review of margining practices*, September 2022, pp 17–18.

3.1.3 Transparency of margining practices

The Phase 1 report highlighted the importance of intermediary and client preparedness for potential IM calls, with this preparedness aided by CCPs sharing analytical tools and data that allow CMs and clients to estimate potential margin needs. The Phase 1 report noted the important role that margin calculators or simulators can play in aiding market participants. Roughly 76% of the CCPs surveyed in Phase 1 indicated that they made margin simulators available to their CMs and, in many cases, to clients. Responses did show that the functionality of these simulators varied, and both CMs and clients noted a desire for enhanced tools to facilitate estimates of potential future margin requirements.

Fewer than half of surveyed intermediaries (46%) indicated that they had the data and tools available to estimate CCP margin calls before they were issued to CMs. Beyond margin simulators, intermediaries pointed to other issues regarding material gaps in the data and information needed to perform accurate estimations of CCP margin call amounts. These issues included a lack of disclosure related to the specific parameters that CCPs use to calculate IM and the ways in which CCPs can use discretion to change parameters. Accordingly, Phase 2 work has explored potential ways in which margin simulators might be enhanced, as well as where further disclosures or information-sharing from CCPs may be beneficial for intermediaries and clients.

The commodities report additionally identified the important role that CMs play both in facilitating client understanding of CCP margin requirements (through information-sharing) and in their ability to adjust margin requirements when passing on CCP margin to clients (eg through the use of margin multipliers). The commodities report noted that there was clear scope for improving client understanding of margin multiplier dynamics, including additional transparency related to their use and the factors used to assign them. With that in mind, Phase 2 has explored in greater detail the extent to which CMs adjust client margin, as well as the determinants behind such adjustments.

3.2 Further information collected

To complement the information collected in Phase 1, the Margin Group has:

- *held virtual stakeholder outreach sessions with CMs and clients*,²⁶ organised jointly with the BCBS-IOSCO Working Group on Margin Requirements, which is taking forward further policy work on margin in non-centrally cleared markets (the relevant excerpts of the agendas for these outreach sessions are set out in Annex B to the Phase 2 consultative report);
- *conducted a survey of CCPs* jointly with the CPMI-IOSCO Policy Standing Group, which is taking forward further policy work on streamlining VM in centrally cleared markets (the relevant excerpts of the Phase 2 CCP survey are set out in Annex C to the Phase 2 consultative report. Responses were received from 28 CCPs, with global representation across all major asset classes); and
- *held meetings with relevant industry groups*, including CCP associations (ie CCP Global, formerly known as CCP12, and the European Association of CCP Clearing Houses), the World Federation of Exchanges and the Futures Industry Association (FIA).
- *published a consultative report with policy proposals to address the transparency and responsiveness of IM in centrally cleared markets*, with the feedback from respondents to the consultation having informed the final proposals.

²⁶ An additional outreach session was held with collateral service providers, but this focused on VM practices in non-centrally cleared markets and therefore is outside the scope of this report.

3.2.1 PQDs and other forms of disclosure

Phase 2 work explored, in greater detail than Phase 1, the specific information-sharing channels used by CCPs to disseminate information to CMs and clients. As one example of that, Phase 2 explored potential amendments and enhancements to the PQDs.

CCPs were asked for views on the existing PQDs. Here, 32% of respondents reported that they could not identify any fields that lacked clarity or could be improved, while half of respondents highlighted elements that could benefit from further clarity. Sections 6 (margin) and 4 (credit risk) were the sections most frequently reported as those that would benefit from further clarity. Focusing on Section 6 (margin), the majority of CCPs called for more precise guidance on the description of IM models in the PQD framework. Additionally, a small number of CCPs noted that guidance on reporting backtesting results could be improved.

Most respondents did not identify any fields that they thought were missing from the existing PQDs, though examples identified by CCPs included (i) additional detail in backtesting results; (ii) additional information in Section 4.1.1 on how CCPs size the default fund; (iii) disclosure of some items at product level, including a suggestion of product-level disclosure to assess product-level procyclicality; and (iv) qualitative descriptions of APC frameworks at CCPs. Only a small number of respondent CCPs identified fields that should be removed from the existing PQDs, and a similarly small number suggested that some or all data fields should be reported more frequently and/or with a shorter data lag in order to aid market participants.

Outside of the PQDs, the Phase 2 work investigated, more broadly, the disclosures made available to different types of stakeholders, as summarised in Table 3 of the Phase 2 consultative report.

Unsurprisingly, regulators were the entities to which CCPs most consistently disclosed information; parallel to this, CMs generally received more – and more detailed – information than clients. Some CCPs do not interact directly with clients; therefore, while reported disclosure to clients is quite low for some items (eg just 15% for the results of regularly scheduled and ad hoc reviews of margin models), this may not fully represent information shared with end users, given that other entities (such as a client's CM) may provide the relevant disclosure on behalf of the CCP. Several CCPs noted that documentation related to their margin models and other information is available on public websites.

All respondent CCPs consider current disclosures to be sufficient, with 41% noting a concern regarding "over-disclosure". Some CCPs expressed concerns that detailed disclosure of model design may lead to full replication/reverse engineering of the margin model, leading to "portfolio window-dressing" which may undermine the risk management incentives of central clearing. Some CCPs also reported concern regarding the disclosure of discretionary/internal processes not captured in the margin model. A small number of respondent CCPs cited a lack of demand from clients and/or regulators for further disclosures. Many CCPs observed that the level of disclosure of their margin methodology was often proportionate to the expertise of the audience, with the logic being that the level of granularity should be proportionate to the degree of technical knowledge of the audience.

3.2.2 Margin simulation tools

Phase 2 work built on the Phase 1 analysis of margin simulators to better understand the current accessibility and functionality of margin simulators provided by CCPs. Of the respondent CCPs, 82% stated that they provide margin simulation tools to other entities. Of the 18% of CCPs that do not provide such tools, the majority noted a lack of demand by potential users and/or no regulation mandating the provision of such tools as the primary reasons for not providing simulators.

In terms of accessibility, all CCPs providing margin simulators gave access to CMs, with the majority (68%) also providing access to clients. Just under half of the surveyed CCPs reported also providing their simulators to the public. The vast majority do not charge CMs, clients or the public for access and use of their tool (see Table 4 of the Phase 2 consultative report).

In terms of functionality, only 14% of respondents providing margin simulation tools featured any forward-looking functionality enabling users to estimate or calculate margin requirements for historical or hypothetical stressed market scenarios. All 14% who reported providing the tools gave users the ability to define their own hypothetical future market scenarios by adjusting specific risk factors (eg shifts in price/risk factor curves and shifts in implied volatility inputs) in the estimation of margin requirements.

Of the CCPs that responded that they provide a margin simulation tool to other entities, all reported that their simulators cover core IM requirements, while 57% also include add-ons within their tool. Of the CCPs that incorporate add-ons into their tool, 85% reported covering concentration and liquidity add-ons, with a further 46% incorporating delivery/settlement add-ons.

Surveyed CCPs were asked for their views on the potential challenges to increasing the functionality of current margin simulation tools. The 86% of CCPs providing simulators without forward-looking functionality noted the cost, or burden, of creating and maintaining these tools and a lack of demand by potential users as the primary reasons for not providing such functionality. More generally, CCPs highlighted development, implementation and maintenance costs as the key challenges to increasing the depth/functionality of their margin simulation tools. Noting the potential implementation costs, many CCPs highlighted that the value of augmenting existing simulation tools with additional functionalities would have to be significant enough to warrant their development, implementation and maintenance. Some CCPs pointed to challenges due to application/software requirements and difficulties in developing, validating and maintaining this software. A few CCPs noted that the lack of user implementation capabilities reduced the potential value of rolling out new functionality.

There was concern among a small number of CCPs that such tools would limit a CCP's ability to respond to a crisis, as CCP judgment/discretion would result in different margin outputs compared with the ex ante estimates provided by a simulator tool. Similarly, a small number argued that the provision of such tools could even lead to inadequate provision of liquidity by misleading intermediaries and clients in the event that the simulator tool misstated potential margin requirements.

Taken together, there is a trade-off, and therefore a balance to be struck, between enhancing margin simulator tools to meet the stated demands or desires of CMs and clients (as articulated in Phase 1 and the subsequent Phase 2 outreach sessions) and the cost of developing such enhancements.

Switching to the users' perspective, the Phase 2 roundtables with CMs and clients emphasised the benefits of simulation tools that enable participants to take a forward-looking view and anticipate IM requirements under varying historical and hypothetical market conditions. Poll results from the industry roundtables indicated that the top three most important types of scenario parameter input files that CMs and clients would like a margin simulator to process are:

- historical market conditions from a user-specified date;
- live data feeds reflecting current market prices; and
- customised stress test scenarios/risk factor shock parameter files designed by the CCP (in the case of CMs) and by the user (in the case of clients).

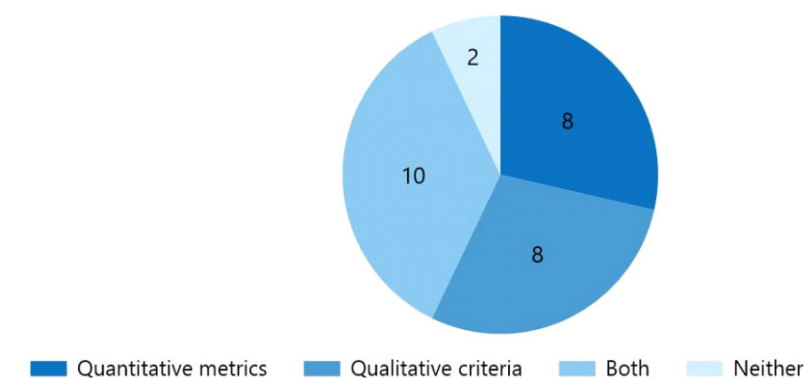
3.2.3 CCPs' approaches to the measurement of margin responsiveness and related governance frameworks

Nearly all of the 28 CCPs responding to the Phase 2 survey reported using quantitative metrics and/or qualitative criteria to measure the procyclicality of their margin models.

Internal measures of procyclicality

Number of CCPs

Graph 3



Source: Phase 2 CCP survey.

The quantitative metrics CCPs use are generally similar in nature, analysing the change in margins (often a peak-to-trough measure) over a pre-defined period. However, parallel to this, there is much less consistency in the time horizon used in such measures. Some CCPs use multiple metrics, analysing changes in margins over both a short-term and long-term horizon.

The qualitative criteria CCPs reported using is varied, though many CCPs make use of feedback from CMs in their analysis of margin procyclicality. Other notable criteria used were comparisons with coincident market conditions and CCP expert judgment, ie CCPs take a view on current and potential future market conditions when determining the appropriateness of margin procyclicality and model performance.

The vast majority of CCPs used either self-defined quantitative metrics or qualitative criteria or both in determining whether to undertake a model review or recalibration. Over three quarters of the CCPs reporting the use of quantitative metrics of procyclicality said that those metrics directly fed into model reviews and/or recalibration. More often than not, the metrics are applied as soft thresholds, ie where margins change by a greater amount than the threshold, this could trigger a model review or recalibration. Most CCPs use quantitative metrics in conjunction with qualitative criteria to determine whether to undertake a model review or recalibration in order to ensure that an assessment of procyclicality is placed in the relevant context.

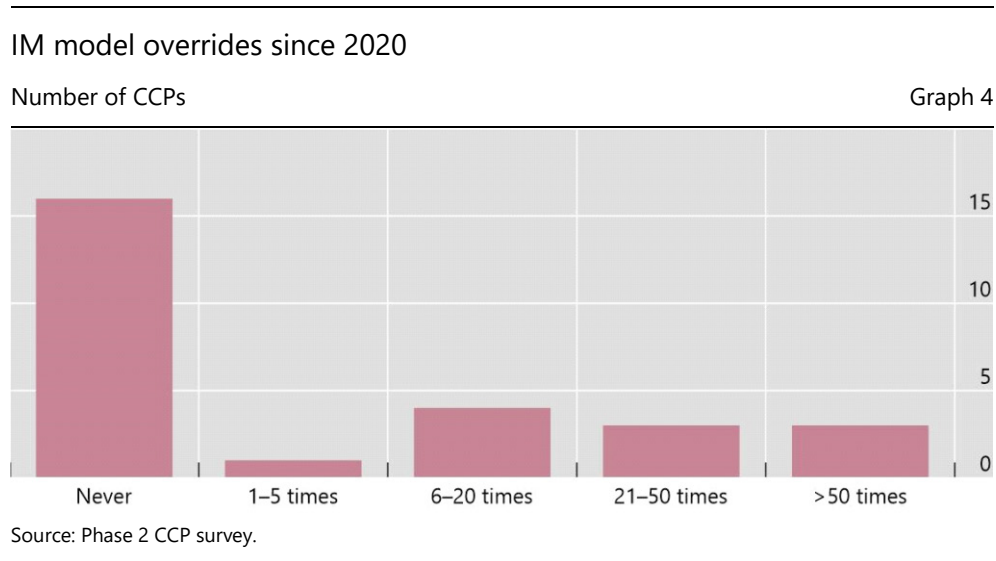
CCPs were asked to report how they balance between procyclicality and other factors, such as margin coverage and average margin costs, when (i) designing their IM model(s) and APC tools and (ii) reviewing and/or recalibrating their IM model(s). The majority of CCPs reported prioritising margin coverage (often subject to a regulatory requirement) when balancing between the different factors. Principally, CCPs reported designing IM models and assessing model performance against the objective of ensuring the model provides appropriate coverage and safety, before subsequently assessing margin procyclicality (and other factors such as margin cost). A small number of CCPs reported giving equal weight to margin coverage, procyclicality and average margin levels, though they were in the minority. Many CCPs reported using a suite of different metrics and criteria in their analysis of model performance, each assessing different aspects including coverage and procyclicality, with many reporting the use of backtesting results for various aspects of model performance.

The general prioritisation of margin coverage by CCPs is not surprising given the priority placed on coverage within the PFMI. Practices reported by CCPs highlight the range of approaches to measuring and assessing margin responsiveness within model performance, and therefore, the potential scope for providing further discussion on how CCPs (and other market participants) can analyse and assess margin procyclicality within the wider context of overall model performance.

3.2.4 CCPs' use of discretion to override modelled margin requirements

CCPs can apply discretion in setting margin requirements for clearing participants. Phase 1 data highlighted that some market participants face challenges in understanding margin requirements when CCPs apply discretion by either changing model parameters or overriding modelled margin requirements. The Phase 2 CCP survey looked to better understand the extent to which CCPs apply discretion and the underlying processes and procedures that CCPs have in place for using such discretion.

Of the surveyed CCPs, 42% reported overriding their margin model since 2020. The number of days on which CCPs reported overriding their model varies substantially from CCP to CCP, as summarised in Graph 4 below.



Around 68% of surveyed CCPs reported having a process in place for determining when to override their IM model, resulting in margin requirements different from those that would have been set by the model. Generally, the approach reported by CCPs involves an initial/ongoing assessment of model performance (eg backtesting to assess whether the model is calling for appropriate levels of margin to meet coverage requirements). Where a concern with model performance is identified (eg under-margining), a decision would be escalated to the CCP's senior management (chief risk officer, board of directors, risk committee or similar senior governance level) to determine whether model outputs should be adjusted. Of those CCPs reporting having a process in place, only a small number reported having a specific trigger that would lead to a margin override. Generally, decisions to adjust model outputs are based on expert judgment and take place in exceptional circumstances, and therefore cannot be determined by a pre-defined trigger.

When a decision is taken to manually adjust margin requirements, CCPs communicate the decision in a variety of ways. CCPs contact CMs directly where the members' requirements are subject to an override. Decisions are also often communicated to members via notices. Some CCPs also reported making such decisions public through notices and press releases. Of those CCPs that reported having a process in place for overriding their model, 32% said that they shared their process publicly.

Phase 2 outreach reiterated the challenges market participants can face in understanding margin requirements where CCPs have overridden their margin model. The Phase 2 survey indicated that CCPs generally have processes in place for adjusting model requirements, though the extent to which these processes are shared with relevant market participants and the way margin overrides are communicated to clearing participants varies across CCPs. Accordingly, Phase 2 work has explored the extent to which information relating to CCP discretion can and should be shared with relevant authorities and market

participants, taking note of the important balance between information-sharing and maintaining CCPs' ability to use discretion where necessary.

3.2.5 The role of clearing members

During industry outreach, clients noted that their understanding of the triggers and calibration of the difference in requirements for their CM relative to CCP requirements was inadequate and often called or adjusted at short notice, resulting in a limited reaction time to meet add-on margin calls. This challenge often came paired with a lack of understanding of the calculation itself, making accurate forward liquidity planning more difficult. Further complicating client understanding is the practice by some CMs of providing clients holding portfolios at a number of CCPs with one overall margin call total for a given currency, thus making it more challenging to attribute margin changes to any one CCP or set of CCPs.

Representatives of CMs explained the factors behind their decisions to apply add-ons to requirements calculated by CCPs. It was noted that additional margin amounts (such as multipliers or buffers) are often charged to clients according to their counterparty credit quality, portfolio size, asset composition and level of market liquidity. In other – though rarer – cases, the reason was not specifically client-related and arose more generally around concerns about CCP margin adequacy relative to anticipated market conditions (ie the CM's view of the risk of a given position or portfolio versus the CCP's estimated risk). Any additional margin CMs charged to clients was typically calculated either using a margin multiplier or through the use of a bespoke in-house system that often embeds credit and market scenario elements. Some CMs also noted that an alternative approach used was to impose limits on the level of exposure a client can take on or to set thresholds at which add-on requirements kick in.

These descriptions by CMs align with feedback received during outreach with end user clients, who suggested that CMs apply margin add-ons for three main reasons: (i) intraday funding risks and costs (resulting in the application of buffers); (ii) credit risk concerns related to the end client (resulting in the application of margin multipliers); and (iii) CCPs charging what the CM considers to be an insufficient level of margin.²⁷ Clients also noted that where they are using a single CM to clear positions across multiple CCPs, the CM may not always provide a breakdown of IM requirements by CCP, further complicating their understanding of the composition of their total requirement.

Overall, Phase 2 industry outreach, supported by findings in the commodities report, emphasised the important role CMs can play in facilitating client understanding of margin requirements and therefore the importance of CMs to client transparency.

3.2.6 Phase 2 consultative report

The Margin Group published a consultative report containing policy proposals to address the transparency and responsiveness of IM in centrally cleared markets in January 2024.²⁸

The consultation received 27 responses which the Margin Group reviewed as part of the work to finalise the policy proposals presented below.²⁹ See *Transparency and responsiveness of initial margin – consultation feedback and updated proposals* for a summary of the consultation responses and a detailed explanation for the changes made between the consultative and final proposals³⁰. In addition to the

²⁷ Individual add-ons may, in some cases, not be applied as a result of competition between clearing members.

²⁸ BCBS-CPMI-IOSCO, *Transparency and responsiveness of initial margin in centrally cleared markets: review and policy proposals*, January 2024, www.bis.org/bcbs/publ/d568.pdf and www.iosco.org/library/pubdocs/pdf/IOSCOPD757.pdf.

²⁹ Where respondents did not expressly request otherwise, the written comments are available on the BIS website (www.bis.org/) and the IOSCO website (www.iosco.org/).

³⁰ BCBS-CPMI-IOSCO, *Transparency and responsiveness of initial margin - consultation feedback and updated proposals*, January 2025, www.bis.org/bcbs/publ/d590_feedback.pdf.

written feedback, BCBS, CPMI and IOSCO held a series of virtual stakeholder outreach sessions in March 2024.

Overall, respondents supported the Margin Group's work to increase transparency and identify ways to evaluate the responsiveness of IM in centrally cleared markets. On balance, mirroring feedback received in Phase 1 of the Margin Group's work, respondents were relatively less supportive of proposals that would result in new or additional requirements in their own sector, while supporting or suggesting further work on the proposals affecting other sectors.

4. Policy proposals

Building on existing standards and guidance, the Margin Group has developed, consulted on and finalised proposals designed to increase the resilience of the centrally cleared market ecosystem in times of market stress.

Much of the current regulatory, supervisory and oversight framework for CCPs is guided by the CPMI-IOSCO's PFMI, which provide a set of international standards designed to ensure that the infrastructure supporting global financial markets is robust and, among other things, well placed to withstand even extreme financial shocks. The PFMI, together with the CPSS-IOSCO's 2012 report, *Principles for financial market infrastructures: disclosure framework and Assessment methodology*,^{31,32} the CPMI-IOSCO's 2015 report, *Public quantitative disclosure standards for central counterparties*,³³ and the 2017 report *Resilience of central counterparties (CCPs): Further guidance on the PFMI*³⁴ (the CCP resilience guidance), stand as the main existing international guidance within which the Margin Group's work operates.

The Margin Group's proposals below primarily seek to aid market participants' and regulators' understanding of margin responsiveness through increased transparency. This, in turn, should help to mitigate the potential that changes in margin requirements in response to market conditions lead to destabilising or disruptive effects on participants or additional markets. Enhanced information-sharing related to margin responsiveness should (i) assist market participants in preparing for potential liquidity demands arising from margin requirements; (ii) facilitate either external (regulators) or internal (CCP) oversight to better understand and assess margin model performance; and (iii) aid CCPs and CMs in building, where possible, standardised approaches that include quantitative-based principles and processes for monitoring and managing margin responsiveness.

The following set of proposals presents the combined outputs of the Margin Group's work on cleared IM responsiveness and transparency. The proposals are structured around already existing communication channels in the financial system that may be enhanced through the sharing of additional information on margin responsiveness and related model characteristics. For the avoidance of doubt, the Margin Group notes that the implementation of these proposals by CCPs and market participants is subject to the legal permissibility of doing so in the relevant jurisdictions. Each proposal is placed within the context of relevant existing guidance and highlights where guidance would need to be amended to implement the proposals.

³¹ See CPSS-IOSCO, *Principles for financial market infrastructures: disclosure framework and assessment methodology*, December 2012 (CPSS-IOSCO (2012b)), www.bis.org/cpmi/publ/d106.htm and www.iosco.org/library/pubdocs/pdf/IOSCOPD396.pdf.

³² In June 2014, the central bank Governors of the Global Economy Meeting (GEM) endorsed a new mandate and charter for the Committee on Payment and Settlement Systems (CPSS). The GEM also decided to rename the CPSS as the Committee on Payments and Market Infrastructures (CPMI).

³³ See CPMI-IOSCO, *Public quantitative disclosure standards for central counterparties*, February 2015 (CPMI-IOSCO (2015)), www.bis.org/cpmi/publ/d125.html and www.iosco.org/library/pubdocs/pdf/IOSCOPD475.pdf.

³⁴ See CPMI-IOSCO (2017).

4.1 CCP transparency

4.1.1 Margin simulators

Policy proposals

Proposal 1: Margin simulation tools should be made available by all central counterparties (CCPs) to all clearing members (CMs) and, where feasible, their clients, including prospective CMs and clients. Where necessary, this access may be paired with appropriate, non-disclosure agreements.

Proposal 2: Margin simulation tools should include, at a minimum, functionality allowing the following:

a. The calculation of margin requirements for a number of the CCP's stress test scenarios, including key historical market stress events, for current and hypothetical portfolios.

b. In addition to baseline (or "core") initial margin, the incorporation of the CCP's main add-on charges that are systematically required across CMs.

CCPs should ensure that margin simulation tools reflect all material components of the underlying quantitative methodologies.

Objective and rationale

Most CCPs provide margin simulation tools to participants in their market, allowing users to calculate and understand, ex ante, the margin requirements for their portfolios due to either changes in the portfolio itself or changes in market conditions.³⁵ The use of these tools can in some cases influence trading strategies and choices related to the selection of clearing venue or exchange, as participants are better able to understand the potential future liquidity needs associated with a given choice. However, the degree of availability of these tools to participants varies, as does their functionality. For example, some simulator tools only cover core IM requirements for current market conditions and so do not include calculations for: (i) IM margin add-ons or (ii) hypothetical or historical stressed market conditions.³⁶

The provision of IM simulation tools with forward-looking functionality and the inclusion of add-ons could aid participants' understanding of the total liquidity demands they may incur when clearing a portfolio at a CCP. These tools could also enable both CMs and clients to understand how a given model may respond to a broad set of market scenarios. This additional information can help participants better plan for stressed liquidity needs, thus helping to mitigate the potential negative effects of unpredictability and procyclicality.

The Margin Group proposes that forward-looking functionality should include estimates of changes in IM due to changes in market conditions (as well as changes in portfolio, though this is more commonly already part of current margin simulator functionality). This would allow users to estimate IM requirements under market conditions that would mirror periods where liquidity preparedness is most important (ie those that represent stressed market conditions). At a minimum, this functionality should include those scenarios that are already included in the set of historical and hypothetical stress tests that the CCP uses to calibrate its own default fund.

In total, the number of stress test scenarios included in CCP simulators should be proportionate to the size and diversity of the products cleared by a given CCP. The Margin Group generally expects

³⁵ While the Margin Group's Phase 2 work focused on increasing the transparency of IM in centrally cleared markets, we note that there could be value in further exploring the benefits of, for example, including VM calculations in margin simulators to provide a holistic estimate of potential future liquidity demands.

³⁶ This observation is based on the information collection in Phase 2 and highlighted in earlier sections, including the CCP survey and the roundtables with CMs and clients.

simulators should include a minimum of five to 20 stress test scenarios. As a base set, the scenarios chosen by CCPs should cover the key stress events most relevant for the asset classes it clears (eg the GFC, the Covid-19 market turmoil of March 2020, and the Russia-Ukraine conflict in February 2022). The minimum number and the scope of these scenarios should be discussed with and agreed to by home regulators, taking into account the input of the CCP's members. CCPs should also consider including additional historical or theoretical scenarios designed by the CCP, in part to avoid excessive uniformisation of risk management across CCPs.

In addition to these baseline scenarios, CCPs should also consider including those hypothetical scenarios in their margin simulators that are deemed useful for market participants for the purposes of liquidity stress testing. CCPs may also consider, at their own discretion and in agreement with their members, offering margin simulation tools allowing users to enter their own scenarios and parameters.

In terms of incorporating add-ons into margin simulator tools, the Margin Group defines add-on charges as components of a CCP's overall margin requirement that are typically calculated to supplement statistical models representing anticipated price changes (ie core IM).³⁷ In the context of margin simulators, the expectation is that the simulator would incorporate the effect of add-on charges that are systematically required across CMs or related only to the position being margined (eg market liquidity risk, wrong-way risk or correlation risk, position concentration, portfolio composition, participant concentration, momentum or volatility metrics, and activity or utilisation metrics). In contrast, the simulator would not necessarily incorporate add-ons that are related to, or dependent on, the individual market participant (eg related to a CCP's credit assessment of the participant), although these could be included in the tool at the CCP's discretion. CCPs should, however, provide sufficient transparency, likely through other transparency efforts, on the thresholds that would trigger the use of CM-specific add-ons and the governance arrangements related to their use so market participants can understand the conditions under which idiosyncratic add-ons may be applied.

The means through which CCP simulators are provided can play an important role in the accessibility and usefulness of these tools for market participants. CCPs should consider making margin simulators available through the provision of web-based, or web-based equivalent (eg downloadable dashboard software) solutions which are commonly and more easily used by a wider variety of clients, regardless of size, and are generally less costly. Access via application programming interfaces (APIs), which may offer additional functionality, could be provided at the discretion of the CCP to its users. Depending on development and maintenance costs, CCPs have the discretion to pair access to margin simulators with a reasonable fee structure.

CCPs should provide direct simulator access to clients where feasible, ie where the client is known to the CCP. In cases where clients may not be known to the CCP (eg omnibus accounts), clients should have the ability to actively request access to CCP margin simulators, either through the CCP or their CM, under reasonable non-disclosure agreements where needed. In addition, in cases like omnibus accounts, the Margin Group is aware that the margin requirements charged by CMs may diverge from the CCP simulator estimates for a given portfolio. As a result, simulator outputs may not necessarily fully align with the actual margin called by an individual CM on an individual client. Still, we believe that the availability and use of simulation tools would be of value to many, if not all, of the CCP client base as they engage in their own liquidity preparations.

³⁷ Paragraph 5.2.12 of CPMI-IOSCO (2017) defines add-ons as follows: "As a general matter, add-on charges can be understood as components of a CCP's overall margin requirement that are typically calculated to supplement statistical models. These add-on charges may include additional charges based on market liquidity risk, wrong-way risk or correlation risk, position concentration, portfolio composition, participant concentration, momentum or volatility metrics, and activity or utilisation metrics. Furthermore, add-on charges can address risks that may be more challenging to model accurately, or are not readily discernible in the price histories of the products cleared. As a result, add-on charges may utilise a more qualitative approach or be calculated in an intentionally conservative fashion."

Relatedly, it is important for market participants to understand that margin simulators can only provide an estimate of potential future margin requirements. Margin simulator tools cannot predict market events, and any forward-looking functionality may generate outputs which differ from actual margin requirements on future dates. Additionally, and as noted within proposal 8, CCPs maintain the ability to override modelled margin rates where appropriate and, accordingly, in such circumstances, estimates of margin requirements produced by a simulation tool may differ from actual margin requirements. Margin simulators are therefore a useful tool for facilitating market participant preparedness for potential changes in margin requirements but should be considered in context and alongside other communication channels or quantitative tools.

In order to ensure that the outputs of margin simulator tools provide an indication of what margin requirements would be under specific historical or hypothetical market scenarios to a sufficient degree of accuracy, the Margin Group is proposing that these tools be kept up to date with the CCP's current margin methodology (ie there should be minimal lag between a CCP making amendments to its margin model and those amendments being reflected in its margin simulation tool).

Existing guidance and potential enhancements

Margin simulators are not expressly detailed within guidance for CCPs, but are a mechanism CCPs have used to meet key transparency requirements within the PFMI and associated guidance.

The PFMI emphasise the importance of transparency as a way of helping to ensure that relevant information is provided to participants, authorities and the public in order to inform sound decision-making and foster confidence. In particular, Principle 23 covers the disclosure of rules, key procedures and market data and specifies that, among other things, an FMI "should provide sufficient information to enable participants to have an accurate understanding of the risks, fees, and other material costs they incur by participating in the FMI". Key Consideration 2 of this Principle goes on to elaborate that "an FMI should disclose clear descriptions of the system's design and operations, as well as the FMI's and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI".

Building on this, the CCP resilience guidance states that the CCP should provide sufficient information "to support the replicability of margin requirements (including, to the extent practicable, add-on charges) such that participants can understand how the margin model behaves and how their individual margin requirements can change over time and under changing market conditions".³⁸

The Margin Group also notes the importance of market participants using the information that is provided to them. The explanatory notes to Principle 23 detail that "participants bear primary responsibility for understanding the rules, procedures, and risks of participating in an FMI as well as the risks they may incur when the FMI has links with other FMIs". Further, paragraph 2.2.15 of the CCP resilience guidance notes that "the board should also ensure that the CCP conducts regular and rigorous due diligence of its participants' understanding of, and their ability to predict and manage, potential changes in margin... This due diligence helps ensure that participants understand and have taken the necessary steps to be prepared to meet such requirements..." In line with the guidance, the Margin Group highlights that it is important for the users of information to engage with and understand the information they receive. Such engagement is necessary to ensure that increased transparency can effectively inform sound decision-making and foster confidence.

The Margin Group proposes to enhance the CCP resilience guidance through express reference to margin simulation tools and to reflect that CCPs should make such tools available to all users. Details on the functionality could be set out at a high level within the guidance and would likely benefit from supplementary detail provided within a best practice document.

³⁸ See paragraph 2.2.23 of CPMI-IOSCO (2017).

4.1.2 Qualitative disclosures to participants

Policy proposals

Proposal 3: CCPs should make information about margin models available to CMs and, where feasible, their clients at a level that enables them to understand material aspects of the CCP's margin model and its approach to risk management. This information should include the following:

- a. Explanations of, and rationale for, the model used (eg SPAN, VaR) and the calibration of key model parameters, including relevant components which affect the size and speed of margin requirement changes during periods of elevated stress (eg lookback period, liquidation horizon, confidence interval and model method-specific parameters).
- b. The logic, applicable thresholds and descriptions of the data used for the calculation of margin add-ons.

Proposal 4: CCPs should publicly disclose and describe the anti-procyclicality (APC) tools used in their model. CCPs should also publicly disclose and describe, at a high level, the model components that affect the level of model responsiveness.

Objective and rationale

Qualitative information shared with market participants by CCPs can often represent the broadest information set related to the CCP's model and risk management policies, covering a wide range of information with varied formats and stakeholders at different levels of sophistication. In part because of this, CCPs regularly disclose their policies and procedures through publicly available rulebooks and operating procedures, or often make more detailed policies and risk information, including information about model components and parameters, available specifically to clearing participants. In addition, clearing participants can also directly contact CCPs or participate in members-only forums to ask bespoke questions in order to fill in more detailed information gaps.

While there is a clear rationale for CCPs having autonomy over the form and detail of the information disclosed to participants, given the wide variety of models and the similarly wide variety of cleared markets, overly heterogeneous sets of information can lead to challenges in understanding liquidity needs. This is particularly true during periods of stress, when the importance of and need for detailed information, especially related to the interactions between portfolio, market conditions and margin, are highest. In the context of understanding model responsiveness and performance, feedback from clearing participants in Phase 1 demonstrated a demand for greater levels of information relating to model design choices (and the rationale for those choices); when and how add-ons are applied; the approach to APC and how it interacts with changing market conditions; the circumstances in which a CCP may apply discretion to change its margin levels; and the scope for providing notice of such changes, differentiating between business as usual and periods of elevated market stress. Although the results of some of these factors, such as model choices and add-ons, are often visible through the use of the simulators discussed above, qualitative information about, for instance, the rationales behind choices and the ways in which these choices interact within a given model should enhance CM and client understanding of the calculations shown within the simulator.

Phase 2 outreach provided further evidence of demand for transparency related to the drivers of margin increases, with CMs requesting additional information on the data used to calibrate CCP margin models and clients suggesting that allowing some elements of CCPs' margin models to be replicated within their internal tools would in turn aid the liquidity preparedness of market participants. In some of these areas, there may be legal and other impediments to the sharing of certain information related to margin model design choices by CCPs; with this in mind, there are benefits to market participants, CCPs

and relevant authorities working together to facilitate increased information-sharing, where permissible and feasible.

The lists delineated by brackets within proposal 3 provide indicative examples of the types of components that CCPs should provide information on, at a minimum. In determining the contents of these disclosures, CCPs should keep in mind the wider aim of proposal 3, ensuring qualitative disclosures by CCPs adequately cover relevant components of the margin model to facilitate market participant understanding of past and potential future margin demands. For example, in the case of add-ons, qualitative disclosures should include detail on how and when liquidity, credit, concentration, and idiosyncratic risks translate into margin add-ons. Additionally, CCPs should include information on the CCP's scheduling of intraday margin calls and payment deadlines

We realise that it is often the case that the same level of granularity of information may not be necessary for different audiences. In general, and as noted above, members, who have direct exposure to the CCPs, may receive more detailed information about model components and calibrations than other market participants or the public at large. Given these differences, our proposal highlights the value of publicly providing information, at a more descriptive level, on the components of a model which could have an effect on margin responsiveness (eg explicit APC measures).

The objectives of the Margin Group's proposals in this space are not to mandate a specific form/template of communication, but to broadly increase the level and detail of information, primarily related to margin responsiveness, that is shared with relevant stakeholders.

Existing guidance and potential enhancements

PFMI Principle 23 emphasises the need to provide sufficient information to enable participants to assess the risks they face. This includes the following:

- An FMI should adopt clear and comprehensive rules and procedures that are fully disclosed to participants. Relevant rules and key procedures should also be publicly disclosed.³⁹
- An FMI should disclose clear descriptions of the system's design and operations, as well as the FMI and participants' rights and obligations, so that participants can assess the risks they would incur by participating in the FMI.⁴⁰
- An FMI should provide all necessary and appropriate documentation and training to facilitate participants' understanding of the FMI's rules and procedures and the risks they face from participating in the FMI.⁴¹

The PFMI also state that CCP IM models should, among other things and to the extent practicable and prudent, limit the need for destabilising, procyclical changes.⁴²

The CCP resilience guidance further elaborates that sufficiently detailed, accurate, reliable and timely information on the CCP's margin system and stress testing framework should be provided to participants and other relevant stakeholders to permit them to understand, provide effective feedback on and, where necessary, challenge the elements of the CCP's approach, methodologies, parameters, assumptions, scenarios and model performance. In particular this includes:

³⁹ See Principle 23, Key Consideration 1 of CPSS-IOSCO (2012a).

⁴⁰ See Principle 23, Key Consideration 2 of CPSS-IOSCO (2012a).

⁴¹ See Principle 23, Key Consideration 3 of CPSS-IOSCO (2012a).

⁴² See Principle 6, Key Consideration 3 of CPSS-IOSCO (2012a).

- sufficiently granular details on the CCP's margin system to support its participants' ability to understand, assess and provide feedback on the predictability of margin requirements, including the likelihood of large or unexpected margin calls in times of market stress; and
- the CCP's approach to add-on charges, as well as its approach to assessing and limiting destabilising, procyclical changes of all financial resources collected, including the supporting rationale for these approaches.⁴³

Where the proposals are endorsed, the CCP resilience guidance would be updated to reflect that CCPs should share relevant margin model documentation and information relating to their APC tools with relevant market participants, as detailed in proposals 3 and 4.

4.1.3 Public quantitative disclosures

Policy proposals

Proposal 5: Public quantitative disclosure (PQD) standards for CCPs should include the following additional breakdowns of margin-related data, wherever available:

- Split between core initial margin and margin add-ons for total initial margin required (PQD item 6.1).
- Results of backtesting of initial margin for the most relevant contracts per clearing service (PQD item 6.5).
- Split by clearing service and currencies of the average and maximum of total variation margin paid to the CCP by participants (PQD items 6.6 and 6.7).
- Measure of initial margin responsiveness for the most relevant contracts per clearing service as detailed in proposal 6 (new PQD item).

All PQD data should be reported consistently and accurately.

Objective and rationale

The PQDs are a vitally important information source, aiding a wide range of market participants and the public in understanding CCP margining practices. Acknowledging this high value, Phase 2 outreach has identified that there is scope to enhance the data currently reported within the PQDs, as well as introduce new data fields detailing margin responsiveness for key products cleared at the CCP. These enhancements would be made in cases where the data are available, including where they are directly available or feasible to generate.

For PQD enhancements, market participants would benefit from more granular reporting of specific fields related to IM and VM (eg important components of IM requirements). This aligns with other proposals, such as those related to margin simulators, which highlight the value of separating out margin requirements into base and add-on components or furthering harmonisation and clarity, possibly through the use of a more standardised file format.

The Margin Group proposes a few, targeted, changes to the PQDs. More specifically, the Margin Group proposes to increase the level of detail for specific PQD fields, including that for current fields 6.1, 6.5, 6.6 and 6.7. This additional detail would aim to improve public transparency regarding (i) shifts in IM component requirements; (ii) CCPs' IM coverage; and (iii) the overall liquidity demands from CCP IM and VM calls. For those elements that reference contract-level information, CCPs should determine the most relevant contracts per clearing service, on the basis of their contribution to the volume of contracts cleared by the CCP and the risks associated with both trading volume and open interest. The Margin Group expects

⁴³ See paragraph 2.2.22 of CPMI-IOSCO (2017).

that CCPs should identify, a minimum of five to 20 relevant contracts depending on: the size of each CCP; the specific characteristics of an asset or product class; and the distribution of risk exposures across individual contracts (eg the number of contracts cleared by the CCP and ETD vs OTC contracts).

On balance, the Margin Group decided not to propose changes to the frequency or lag of margin-related PQDs given the concerns raised on the appropriate balance between timely information and the value/accuracy of that information. The Margin Group endorses further future consultation to determine an optimal balance.

Existing guidance and potential enhancements

The PQDs are set out in the 2015 CPMI-IOSCO report *Public quantitative disclosure standards for central counterparties*⁴⁴ and have benefited from a standard data template coordinated by CCP Global (a global association of CCPs). CCPs currently publish PQD data on a quarterly basis, with a one- to two-month reporting lag.

The PQDs were developed by CPMI-IOSCO with the aim of setting expectations for the minimum public quantitative disclosures expected of CCPs under Principle 23, Key Consideration 5 of the PFMI. Were proposal 5 to be endorsed, the amendments and additions to the PQDs would be reflected in the *Public quantitative disclosure standards for central counterparties*, specifically within Section 6 (which focuses on qualitative and quantitative information regarding margin).

The enhancements set out in proposal 5 may be implemented directly within the existing PQDs through increasing the level of detail required in current fields 6.1, 6.5, 6.6 and 6.7. Potential future enhancements representing a more substantive shift in practice, for example, increased frequency of reporting, should be considered more fully by CPMI-IOSCO. For instance, a more significant review could consider how to improve data reliability and quality; this may be achieved by suggesting that CCP Global enhance its existing reporting template to facilitate reporting in a standardised, machine-readable format with enforceable data types, formats, enumerated values and easier-to-implement automated data quality logic checks.

4.1.4 Measuring and publicly disclosing margin responsiveness

Policy proposals

Proposal 6: CCPs should compute and disclose standardised measures of margin responsiveness, as described in the explanatory text. The disclosure should be included in the PQD framework for the most relevant contracts per clearing service (see proposal 5). CCPs should make available to regulators, upon request, the computed daily time series of the standardised measures for monitoring purposes.

Objective and rationale

The Margin Group proposes the development of a novel measure of margin responsiveness, publicly disclosed through the PQDs, alongside measures of the associated changes in market conditions. This measure aims to facilitate a, primarily retrospective, review of margin response to stress conditions. Annex A contains details of the proposed measure.

As previously noted, market participants often work to anticipate future liquidity demands to ensure that they are adequately prepared for bouts of market volatility that could otherwise cause liquidity stress. Measures related to the size (and speed) of margin model reactions during actual periods of unexpected volatility change can be a good indicator of the upper tail of liquidity demands partially due to margin calls during periods of stress. Accordingly, to aid with preparation and comparisons across time

⁴⁴ See CPMI-IOSCO (2015).

and markets, the Margin Group has determined that there is value in providing a standardised measure of margin responsiveness.

Because IM models are designed to react to market conditions (specifics of which can depend on the individual model), it can be challenging to understand the reasons for past margin changes or to anticipate future demands under stress conditions without additional context. Therefore, the informativeness of measures of responsiveness is often dependent on interpreting them alongside data on market conditions during the period of interest.

With the value of that context in mind, the Margin Group proposes that CCPs disclose, via the PQDs, measures of the relative change in IM alongside the relative change in volatility over the same period, for two observation periods as defined in Annex A. In its simplest form, this could be represented as:

$$\Delta \text{ Initial Margin in } \% \text{ vs } \Delta \text{ Volatility in } \%$$

In order to help ensure standardisation, the measure needs to be clearly defined, with specific guidance for all relevant parameters, ensuring that CCPs can report the data in a consistent manner. Annex A sets out further details of this proposed measure, including choices of individual parameters, as informed by commenters. In addition, the Margin Group has analysed the impact of various parameter choices (set out in Annex A.5 to the Phase 2 consultative report) and the observed behaviour of the measure under certain market conditions.

Proposal 6 focuses on margin and volatility measures related to the most relevant products cleared at a given CCP.⁴⁵ Depending on the distribution and diversity of products cleared at an individual CCP, the expectation is that a minimum of five to 20 relevant products would be included in the public disclosures. In case the price/value of the underlying is not publicly available, the CCP should also publish the price/value at the relevant dates as set out in Annex A. CCPs may also provide additional context for the metrics through qualitative disclosures.

Because the disclosures would be linked to these relevant products, the Margin Group expects that the provided information would be of value (given the importance of the contracts to the CCP and to members), and not overly complex (given product-level margins and volatilities are relatively straightforward to calculate). In general, the published metrics would represent changes over relatively short periods of time (ie those most relevant to margin demands). Over time, this new disclosure of margin responsiveness will establish a historical standardised time series.

In addition to these public disclosures, the Margin Group highlights the value of a similar set of information for regulators for model review and oversight. However, without needing to fit into a larger disclosure structure of the PQDs, disclosures to regulators could be done on a more granular basis, on an as-needed basis.

Similar to the enhancements set out under proposal 5, the proposed addition of a margin responsiveness disclosure within the PQDs would be reflected in *Public quantitative disclosure standards for central counterparties*, specifically within Part 6 (which focuses on qualitative and quantitative information regarding margin).

⁴⁵ "Relevant products" here could be identified through the use of risk-related measures such as aggregate margin collected for the contract and/or through more execution related variables such as volume and open interest.

4.2 Governance and review of margin models

4.2.1 Framework for assessing model performance and taking appropriate action

Policy proposals

Proposal 7: CCPs should identify and define an internal analytical and governance framework, appropriate to their business lines and risk profile, for assessing responsiveness within the broader context of margin coverage and cost, with the framework and parameter choices communicated to relevant authorities. CCPs should seek input from market participants (eg through the risk committee) when designing or making material changes to the framework. The framework can be used by CCPs and relevant authorities to regularly monitor the performance of initial margin models and trigger the review of initial margin model parameters in case of need.

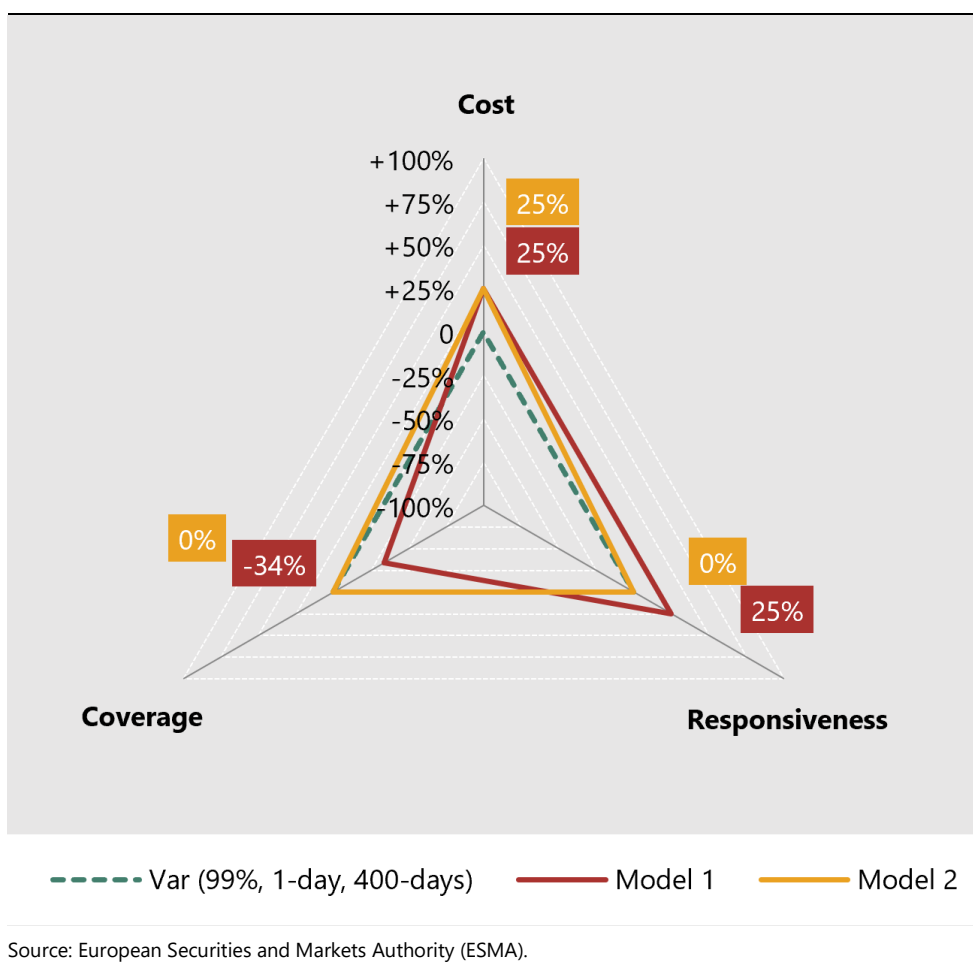
Objective and rationale

When assessing model performance and analysing model dynamics, CCPs and relevant authorities should consider the appropriate balance of key margin factors, such as margin coverage, cost and responsiveness, in a holistic way. It would be reductive to assess overall model performance by isolating one aspect of performance, such as margin responsiveness, monitoring that factor alone, and determining the success or failure of a given model using that single dimension. Instead, a full assessment would, for example, assess and balance (i) the level of margin coverage; (ii) the average margin cost; and (iii) a measure of margin responsiveness, all computed over the same lookback period, ideally covering a spectrum of market conditions.⁴⁶

The resulting framework, which is likely to depend on both the product mix cleared by the CCP and the mix of member portfolios, would aim to assist relevant authorities and CCPs in understanding (i) how a model is designed to react to changing market conditions/portfolios and, in comparison, how it actually reacts; and (ii) the effectiveness of a given APC tool or set of interacting tools.

Graph 3 provides a graphical depiction of one potential quantification of the three dimensions highlighted above for a few different (hypothetical) models. The graph shows the performance of two models across the three factors, as well as a comparison with a VaR-style model with the given calibrated coverage and lookback periods. Through similar versions of analysis, tailored to their own product and portfolio mix, CCPs and relevant authorities can potentially evaluate how decreasing the level of responsiveness could have a negative impact on margin coverage (ie an increase in the number of breaches) and/or on margin cost (eg a higher level of margin called to cover the same risk). Analysis of this type could highlight the sensitivity of the model along each of these dimensions, as well as how these sensitivities may increase or decrease depending on a specific set of market conditions.

⁴⁶ In undertaking such an assessment, it is important to note that coverage levels are often subject to regulatory requirements, while responsiveness and cost may not always have explicit targets. While responsiveness may not have explicit targets, a number of CCPs are subject to a requirement to incorporate at least one APC-style tool.



Within such a framework, the Margin Group proposes that CCPs should use quantitative measures of responsiveness, as well as potentially other major factors, to inform appropriate governance responses to significant changes – or anticipated changes – in margin requirements. For instance, CCPs could monitor a large call measure of responsiveness on an ongoing basis and identify a pre-defined threshold of responsiveness that could trigger a review of the margin model. This review could then analyse the breach event within the broader context of the additional dimensions of interest, aiding with understanding whether the responsiveness trigger was paired with desirable or undesirable outcomes related to cost or coverage. By identifying, ex ante, anticipated levels of responsiveness within the wider context of coverage and cost, a CCP can ensure appropriate action is taken, when needed, in response to significant volatility or significant unexpected shifts in margin. Appropriate responsive actions, relative to these triggers, could include reviewing model design and determining that a given element or set of elements of the model were the primary drivers of the shifts, and the CCP could recalibrate its model, remaining sensitive to how the recalibration would affect the balance between the framework dimensions. Of course, any review of this type would need to be done within the context of broader model goals and requirements, but the fundamental goal is the ability of CCPs to monitor margin responsiveness in the context of wider model performance.

Existing guidance and potential enhancements

There is a significant amount of existing guidance on CCP governance and appropriate ways in which to monitor and assess margin model performance. This proposal would not replace that guidance.

PFMI Principle 2 on governance states that “an FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders”. The Key Considerations associated with this principle provide further detail, including Key Consideration 7, which states that “an FMI should have governance arrangements that are clear and transparent, promote the safety and efficiency of the FMI, and support the stability of the broader financial system, other relevant public interest considerations, and the objectives of relevant stakeholders”.

The CCP resilience guidance further elaborates on how appropriate governance arrangements can limit destabilising, procyclical changes. It emphasises that the board should have ultimate responsibility to assess and limit – to the extent practicable and prudent – destabilising, procyclical changes in, among other things, IM. The board’s approach should be clearly defined, justified and documented with clear roles and responsibilities established for management and the board. Furthermore, the CCP resilience guidance states that the approach should be reviewed and approved by the board at least annually, supported by analysis performed by management and in consultation with participants, linked CCPs and other relevant stakeholders.⁴⁷ The CCP resilience guidance also describes what could constitute a comprehensive disclosure and feedback mechanism for soliciting views from direct participants, indirect participants and other relevant stakeholders to inform the board’s decision-making regarding the CCP’s risk management framework.⁴⁸ Though governance frameworks will be discussed more immediately below, any governance framework is likely aided by the use of well defined, clear principles and metrics, guiding the decision-making process. The framework described above is, in part, aimed at providing this quantitative guidance.

In terms of how a CCP analyses and monitors its margin model performance, the CCP resilience guidance describes how sensitivity analysis can be used to assess the responsiveness of margin system parameters. The CCP resilience guidance specifies that a CCP should conduct a sensitivity analysis at least monthly, and more frequently where appropriate. As an example, the guidance suggests that a CCP could review the procyclical properties of the margin system by simulating how it would respond to a sharp increase in market volatility.⁴⁹ In particular, the CCP resilience guidance states that a CCP should evaluate the appropriateness of APC tools in its margin models and develop clearly articulated frameworks for assessing, disclosing and addressing this particular risk.⁵⁰

However, both the PFMI⁵¹ and the CCP resilience guidance⁵² acknowledge that there is a trade-off when seeking to limit procyclicality, specifically that “procedures designed to limit the need for procyclical changes may create additional costs for a CCP and its participants in periods of low market volatility and/or no market stress, but these procedures may also result in additional protection and potentially less costly and disruptive adjustments in periods of high market volatility”. Therefore, the CCP resilience guidance states that, in considering such trade-offs, CCPs should take a practicable and prudent approach that is “appropriately designed to target outcomes that result in additional protection and potentially less costly and disruptive adjustments in periods of high market volatility and/or market stress”.

Furthermore, the PFMI clearly specify that limiting the need for destabilising, procyclical changes is secondary (ie to the extent practicable and prudent) to generating margin requirements sufficient to cover a CCP’s potential future exposure.⁵³

⁴⁷ See paragraph 2.2.13 of CPMI-IOSCO (2017).

⁴⁸ See paragraphs 2.2.18–2.2.27 of CPMI-IOSCO (2017).

⁴⁹ See paragraph 5.2.35 of CPMI-IOSCO (2017).

⁵⁰ See paragraph 5.2.37 of CPMI-IOSCO (2017).

⁵¹ See paragraph 3.6.10 of CPSS-IOSCO (2012a).

⁵² See paragraph 5.2.38 of CPMI-IOSCO (2017).

⁵³ See Principle 6, Key Consideration 3 of CPSS-IOSCO (2012a).

Accordingly, the CCP resilience guidance would only need a minor enhancement to more explicitly set out how a CCP's assessment of its margin model performance might directly link to governance triggers for model review and/or recalibration, as opposed to a wholesale rewrite of how a CCP should assess model performance.

Relatedly, the CCP resilience guidance also speaks to the possible use of quantitative metrics to evaluate the procyclical properties of a CCP's margin model. As an example, the CCP resilience guidance describes examining procyclicality through regular sensitivity testing and review metrics, such as the variability of margin and peak-to-trough ratios or instances of sudden material increases in margin. It also notes that relevant metrics could also be based upon an ex ante range of tolerances determined by the CCP's governance process that specifies acceptable large changes in the amount of resources collected from participants.⁵⁴ This guidance should be strengthened to suggest more directly that CCPs should use quantitative measures of procyclicality (potentially building off the metrics developed under proposal 6) to assess the procyclicality of their margin model.

4.2.2 Governance and review of margin models where CCPs apply discretion

Policy proposals

Proposal 8: Where CCPs make use of discretion (eg expert judgment) to override model margin requirements, CCPs should:

- a. Have in place clear governance procedures for using such discretion and undertake ex post reviews where such discretion has been applied. CCPs should seek input from market participants (eg through the risk committee) on the design of these governance procedures and the results of any ex post reviews. CCPs should clearly articulate and define the instances and areas where such overrides may be warranted (including clear definitions of the key decision-makers – eg those who can perform overrides – and the extent to which these adjustments are deemed permissible without, for example, requiring a material model change). It is similarly important that the CCP establishes clear guidelines as well as processes which enable the CCP to identify and monitor the overridden risk variable or model output.
- b. Publicly disclose relevant information regarding the instances where discretion may be applied and the governance procedures used in the application of such discretion. CCPs should proactively share the governance procedures for the application of model overrides, in full, with relevant authorities.
- c. Communicate to relevant authorities engaged in the supervision or oversight of the respective CCP the aggregate size and duration of manual margin overrides, as compared with unadjusted initial margin requirements. The disclosure to authorities should be supported by a qualitative explanation of the reasons for the override.
- d. Share with CMs subject to a model override a supporting qualitative explanation of the reasons for the override.

Objective and rationale

During the March 2020 “dash for cash” and the 2022 period of commodities market volatility, authorities observed a number of CCPs applying manual margin overrides. These overrides included adjustments of parameters such as the scan range, volatility floor, margin period of risk and confidence interval. CCPs cite a number of reasons for this use of discretion: (i) ensuring adequate risk coverage; (ii) enhancing the stability of margin requirements with the aim of limiting the size and speed of IM increases; (iii) improving the match between margin and market liquidity conditions; (iv) anticipating risks that had not yet resulted in a market response; and (v) incorporating feedback from users.

⁵⁴ See paragraph 5.2.42 of CPMI-IOSCO (2017).

While this discretion is valuable and necessary, in some circumstances it inevitably leads to a reduced understanding of the interactions between market conditions, margin responsiveness and model performance for both market participants and relevant authorities. Where CCPs manually adjust margin requirements such that margin deviates materially from disclosed model outputs, in-the-moment market participant understanding of responsiveness can fall, with potential negative impacts on the effectiveness of prior liquidity preparations by members and clients. Though relatively rare, there have been cases where market participants received no prior warning of model overrides and minimal ex post explanation for why such overrides were necessary. There has also been variance in the level and nature of formalised governance processes underpinning how and when expert judgment might be applied to deviate from model margin requirements. Further, model overrides are not always the subject of ex post standard reviews by either the CCP or the relevant authorities.

This proposal seeks to provide additional transparency around the CCP's use of discretion while preserving the CCP's ability to deal with unexpected circumstances. As with other proposals, proposal 8 highlights the potential value of this information for a wide set of participants and individuals, but also the need for differing levels of disclosure depending on the audience (eg relevant regulator, CM or public).

Existing guidance and potential enhancements

The guidance set out within PFMI Principle 2 and the CCP resilience guidance apply equally for scenarios where CCPs apply judgment to override their margin model. Accordingly, CCPs should have governance arrangements that are clear and transparent, including in scenarios where they apply discretion.

Notably, the existing guidance does not make reference to the scenario where a CCP applies a manual margin override and therefore the CCP resilience guidance should be enhanced through additional clarifying text stating that the governance and model review expectations apply equally to scenarios where CCPs apply discretion.

4.3 CM transparency

4.3.1 CM-to-client transparency⁵⁵

Policy proposals

<p>Proposal 9: CMs should provide transparency to their clients regarding how their margins are calculated.</p> <ol style="list-style-type: none"> a. Where client margins are those charged by the CCP(s) (ie "passed through" by the CM), CMs should facilitate clients in accessing CCP model disclosures, including CCP-provided margin simulation tools. In addition, where clients clear at multiple CCPs via the same CM, CMs should, to the extent possible, disaggregate client margin requirements such that the client can attribute margin requirements to the originating CCP. b. Where client margins deviate from those that would be charged by CCPs, CMs should: provide documentation to their clients containing a detailed description of how client margins are calculated which should include, where appropriate, the provision of their own margin simulation tools; disclose the rationale for, and magnitude of, those deviations to clients subject to such deviations; have an internal governance framework in place for determining when to charge client

⁵⁵ For the avoidance of doubt, all proposals suggesting detailed disclosure and/or increased transparency relate only to centrally cleared markets and are not intended to have direct implications for activity in non-centrally cleared markets. Where CM decisions on, for example, client margin multipliers are informed by activity in both centrally and non-centrally cleared markets, documentation should note that interaction but need not provide detail on the specifics that pertain to non-centrally cleared markets.

margins that deviate from CCP margins and; have an analytical framework in place for assessing the impact of such deviations in margins on their clients.

- c. Without the need for a client request, CMs should provide appropriate notice to a client in cases where the calibration of client margins is modified, including how the triggers or thresholds for such calibrations are set and used, without prejudice to the need for CMs to be able to amend client margins at pace when required (eg during a stress).

Objective and rationale

CMs play a crucial role in centrally cleared markets by, among other things, providing clients access to cleared markets and CCPs by way of their intermediation. An end user will generally not have a direct relationship with a CCP but instead rely on one or more CMs (also referred to as clearing brokers) to clear their transactions through the relevant CCP(s). Typically, CMs are liable for all margin requirements the CCP places on clients' positions and thus must cover any margin calls their clients fail to meet within the applicable time frame. CMs generally manage their clients' portfolios and risk by directly passing on the CCP's margin requirements to their clients; however, many retain the ability to require a different amount of IM for their clients' positions than that required by the CCP (eg CMs can charge higher IM from their clients through the application of, for example, margin multipliers). These add-ons or multipliers can often be dependent on the credit quality of the client, any associated positions the client is holding that are known to the member, or the underlying cost of liquidity for the member itself.

As a result of this operating model, with clients principally (and sometimes only) interacting with their CMs and CMs setting the ultimate margin requirement for clients, CMs play an important role both in facilitating transparency in centrally cleared markets and in affecting the overall responsiveness of margin in centrally cleared markets.

To ensure the Margin Group's proposals capture the full life cycle and full set of drivers of the margin requirements faced by clients, it is necessary to expect similarly high standards of transparency and the same rigour in assessing the responsiveness of margin from CMs as that demonstrated by CCPs. With this noted, the Margin Group recognises that the modes by which margin add-ons are calculated can differ significantly from CCPs' own models (eg the CM identifies an appropriate multiplier and applies that to the CCP-calculated margin); there are equally important distinctions in the ways in which information is communicated or the ways in which decisions are made. Because of these differences, though the need for a similar level of transparency is important, the methods of achieving this transparency are likely to differ between the CCP and the CM levels. The Margin Group has tried to acknowledge these distinctions in the proposal, including through modifications to the proposal in the light of consultation comments.

Because CMs intermediate between clients and CCPs, the proposal points to the need for the intermediation of relevant information. For example, CMs should help facilitate access to margin-related information provided by the CCP, whether quantitative (eg by facilitating access to CCP simulators) or qualitative (eg by passing on relevant CCP margin documentation) in nature. The nature of this facilitation may differ by member and by CCP, for instance depending on the simulator access model or the form of, and disclosure restrictions on, documentation. However, direct access to CCP information may be challenging, or even impossible, for some clients (especially in cases where the client is not directly known to the CCP, as may be the case for omnibus accounts), emphasising the value of the role of the CM in providing this information.

In some cases, CMs are not simply a conduit of CCP rules or demands, for instance when charging a margin add-on or re-calculating client margin requirements on a gross basis.⁵⁶ CMs should

⁵⁶ In the case of omnibus accounts, the CCP may call on the CM the net total margin required on the client positions. Therefore, it may not always be possible for CMs to determine the net requirement associated with each client's portfolio. In some cases, CMs may re-calculate client margin on a gross basis by replicating the CCP's model in house. This re-calculation by the CM

provide sufficient transparency about the add-on or re-calculation framework through model documentation, either by allowing clients to quantitatively estimate the deviation from CCP margins (eg where these are carried out on a systematic basis) by providing access to CMs' own margin simulators or through private disclosures on the margin requirements under different scenarios (eg if add-ons are charged to clients based on their individual risk profile), as appropriate. Where additional margin is required from an individual client by a CM based on its individual risk profile (such as a credit risk add-on), that CM should be able to provide sufficient transparency on how the triggers or thresholds for their use are set. This information should allow the client, through the combination of CCP and CM information, to understand past liquidity demands and to better prepare for potential future margin calls. In addition, in cases where a CM implements changes to its frameworks for determining client margins, that CM should provide adequate notice of these changes to all relevant clients.

Relatedly, CMs should consider the effects of changes to, or deviations from, 'standard' or 'expected' client margin requirements. As part of this, CMs should have an internal framework for evaluating the reasonableness of margin calls on clients (in those cases where they differ from a pure CCP pass-through), an internal governance process for evaluating and updating its own margin framework, and, finally, policies and procedures related to the use of discretion. Each of these components should ensure consistency and predictability in any deviations between CCP and CM requirements, whether these deviations are due to an ex ante model, or through the necessary use of discretion.

Existing guidance and potential enhancements

There are no existing standards or guidance that specifically address margin-related disclosures by CMs. There are existing disclosure requirements for banks, but these requirements are broader than margin and do not apply to non-bank CMs.

4.3.2 CM-to-CCP transparency

Policy proposals

Proposal 10: CMs should disclose relevant information to the CCPs of which they are members and relevant authorities. This should include information related to the exposures, potential losses and liquidity needs resulting from their participation in multiple CCPs.

Objective and rationale

In response to the Phase 1 consultative report, CCPs called for "further transparency from CMs".^{57 58} CCPs are directly exposed to CMs (and indirectly their clients) by way of the positions posted by members at their institution; CMs may also provide additional services to CCPs such as custodial services, repo lines or other liquidity provisioning. Disclosures from CMs can enable CCPs to appraise more effectively the nature of the cleared exposures their members are taking within the context of other correlated exposures held by the member. With this information, CCPs may be able to better adjust any exposure limits or better understand the impact of their own margin calls within the broader set of liquidity demands on that institution.

may not be accurately described as a client "add-on". However, the CM should be expected to provide the same level of transparency in these cases and explain to their clients the extent to which the margin they are calling from their client deviates from the margin called by the CCP.

⁵⁷ As an example of these disclosure requests, CCP Global proposed a disclosure process parallel to the current CCP PQDs, called Market participant public quantitative disclosures (MPPQDs).

⁵⁸ See BCBS-CPMI-IOSCO, *Review of margining practices – thematic summary of feedback*, September 2022, www.bis.org/bcbs/publ/d537_feedback.pdf and *Review of margining practices – Thematic summary of feedback*. See also footnote 14 above.

The Margin Group recognises that CMs already provide information both to the public as well as, to a more detailed extent, the CCPs themselves. For instance, information on liquidity demands faced by some CMs is included in banking institutions' Pillar 3 reports (among other public documents). These reports provide information on both liquidity resources and liquidity calls, not just for the cleared exposures of a given banking institution, but for all other market exposures that entity may have. This set of information may already provide CCPs with a window into the liquidity demands that members have faced or will face under stressed market conditions. However, a number of current CCP members are not banking institutions and therefore are not automatically subject to a similar set of liquidity disclosures. Because of this, there is currently a diversity of available information regarding liquidity resources and calls across key institutions. In addition to these current public documents, CCPs request a broad set of information from members, both during the onboarding process, as well as on an ongoing basis, so that the CCP can monitor the credit quality and risks of a member through time. Often, this sharing of information is a requirement of acting as a member of a given clearinghouse.

While certain CCPs will require specific information as part of their own ongoing due diligence, the Margin Group recognises the value of ensuring a sufficient level of transparency from CMs to CCPs across centrally cleared markets. More specifically, the Margin Group considers there is value in CMs providing a CCP with information on their exposures to *other* CCPs, which that CCP may not systematically receive information on, to improve its understanding of the implications of these exposures for its own ongoing risk management. These disclosures could cover, among others things, high-level information on the exposures of the CM across CCPs, such as: (i) the number and name of the CCPs to which the CM is directly connected; (ii) the total default fund contributions deposited and non-prefunded resources required across all CCPs, by collateral type; (iii) additional details about the size of cleared and uncleared exposures in asset classes related to the CM's own exposures; and, (iv) information on the CM's liquidity resources and liquidity providers. Given the confidentiality of such information, CCP shall not use the information for any purposes other than risk management of its own clearing business, and CCPs must treat the information as strictly confidential.

However, the Margin Group recognises that the level of CM-to-CCP transparency can differ significantly from member to member at a more fundamental level (eg bank vs non-bank members). Given this diversity in membership and in CCP needs, challenges remain in identifying the key areas of additional transparency that would be of most benefit to the CCP's own liquidity and exposure preparations.

Existing guidance and potential enhancements

There are no existing standards or guidance that specifically address disclosures on CMs' cleared exposures and existing disclosure requirements on liquidity demands do not apply to non-bank CMs.

There was not enough evidence collected from the consultation to support an explicit list of mandatory CM-to-CCP disclosures. As a result, the Margin Group suggests that future work in this area could be taken forward by the relevant standard setting bodies.

Annex A: Analytical annex on new PQD metrics related to responsiveness and volatility

As outlined at a high level in Section 4, the Margin Group proposes to introduce a set of reporting lines in the public quantitative disclosures (PQDs) for central counterparties (CCPs) to disclose a measure of margin responsiveness alongside a measure of the associated volatility.

Defining a measure of margin responsiveness and associated volatility

The standardised measure of initial margin (IM) responsiveness is based on two main components, a measure of the rate of change in IM and a measure of the rate of change in market conditions (the 'change in risk'), each derived from data taken from a pre-defined observation period.

The measure of IM change is computed by using a 'large call' metric, defined as the largest increase in margin over n business days, where n denotes the large call window parameter.

Expressed as a formula, the CCP should compute, for a product p :

$$LC_t^p(m) = \max_{d,w} \left[\frac{m_{t-w}^p - m_{t-w-d}^p}{m_{t-w-d}^p} \right] \forall \{1 \leq d \leq n, 0 \leq w \leq W\}$$

where m_t^p is the IM requirement⁵⁹ for product p on day t , W is the time period over which large calls in IM are observed (the observation period). In practice, the large call at day t is the maximum relative IM increase over a period no longer than n days that has been observed between $t - W - n$ and t .

To compute the rate of change in market conditions, the volatility v_t^p for product p should be computed as the standard deviation⁶⁰ of daily (ie one-business day) returns of the selected product⁶¹ over a three-month lookback period. The paired measure of changes in market conditions is then defined by applying the same formula adopted for the change in IM on the volatility, but restricted to the interval around the time at which the $LC_t^p(m)$ is at its maximum (to help ensure a causal relationship between the margin change and the associated volatility change). So, if t_*^p is the end date identified for the largest call in **IM**, the paired measure of changes in volatility should be computed as:

$$LC_{t_*^p}^p(v) = \max_{d,w} \left[\frac{v_{t_*^p-w}^p - v_{t_*^p-w-d}^p}{v_{t_*^p-w-d}^p} \right] \forall \{1 \leq d \leq n, -W_d \leq w \leq W_d\}$$

with W_d equal to 10 business days.⁶²

For the most relevant products, at the end of each quarter, CCPs should compute and disclose:

- The largest one-business day large call for margin requirements with both a one-year observation period and a three-month observation period (ie, $LC_t^p(m)$ with $n = 1$ and W reflecting the number of business days in the previous year and, separately, with W reflecting the number of business days in the previous three months).

⁵⁹ This should be the IM amount in the relevant currency, not the margin rate in per cent.

⁶⁰ In exceptional cases, the standard deviation may be equal to zero (ie where the underlying price has not changed for three months). In this case, CCPs should report a zero value for the metric

⁶¹ Where there is more than one underlying associated with product p , this should be the returns of the main risk factor for that product.

⁶² For $v_{t_*^p-w}^p$, where the volatility data are unavailable for certain future dates these can be omitted from the calculation of $LC_{t_*^p}^p(v)$.

- For both observation periods, the end date associated with the one-business day largest call in IM as well as the value of IM on that day, i.e., t_*^p and $m_{t_*}^p$ identified in the computation of $LC_t^p(m)$ with $n = 1$ and W defined as above.
- For both observation periods, the largest one-business day large call for volatility, $LC_{t_*}^p(v)$, within $W_d (= 10)$ business days of the one-day IM large call, as defined above.
- The largest 20-business day large call for margin requirements with both a one-year observation period and a three-month observation period, i.e., $LC_t^p(m)$ with $n = 20$ and W reflecting the number of business days in the previous year and, separately, with W reflecting the number of business days in the previous three months.
- For both observation periods, the end date associated with the 20-business day largest call in IM as well as the value of IM on that day, i.e., t_*^p and $m_{t_*}^p$ identified in the computation of $LC_t^p(m)$ with $n = 20$ and W defined as above.
- For both observation periods, the largest 20-business day large call for volatility, $LC_{t_*}^p(v)$, within $W_d (= 10)$ business days of the 20-day IM large call, as defined above.

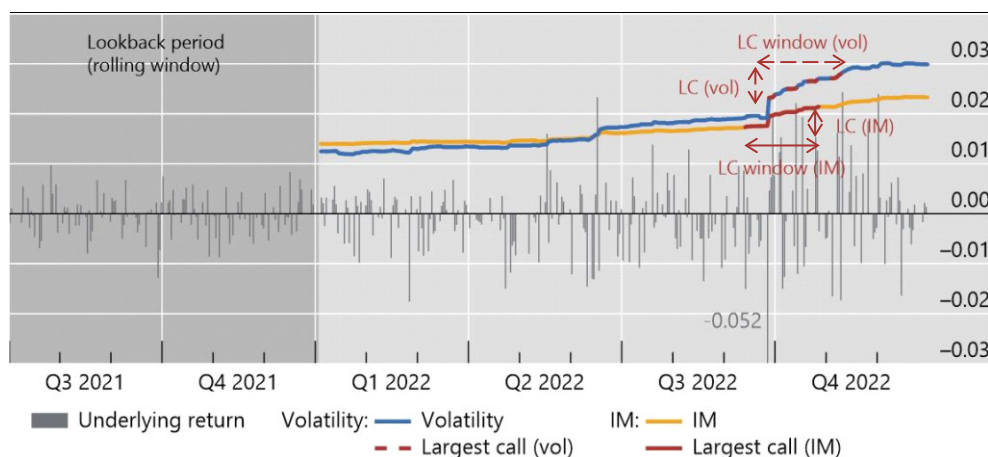
In case the price/value of the underlying is not publicly available, the CCP should also publish the price/value at the relevant dates (ie, start and end dates associated with the one-business day largest call in IM and start and end dates associated with the 20-business day largest call in IM) In some cases, the price or value of a contract can also be an important explanatory factor for significant changes in IM. Accordingly, where this may be the case, CCPs should ensure that daily prices are publicly available for these key contracts or should provide additional context for the metrics through qualitative disclosures.

To aid understanding of the dynamics of and relationship between these metrics, the two associated measures are illustrated graphically below on a single risk factor (Graphs A.1 and A.2).

Illustration of key terms used in measures of responsiveness and volatility: GBP/USD

In percentage points

Graph A.1

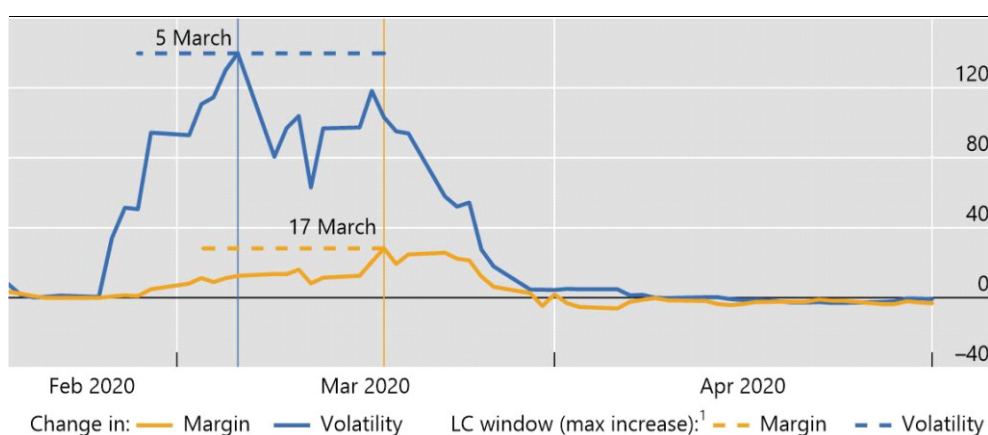


Source: BCBS-CPMI-IOSCO Margin Group.

Illustration of key terms used in measures of responsiveness and volatility: SPX 500 product

In per cent

Graph A.2



¹ Noting the lag between the date of largest per cent increase in volatility (5 March) and the date of largest per cent increase in margin (17 March).

Source: BCBS-CPMI-IOSCO Margin Group.

For each element of these disclosures, there are parameter choices which can affect the calculated output. For example, the large call metric is applicable to a number of levels of margin calculation as well as a number of observation periods, while the measure of changes in volatility is often dependent on the time period used to calibrate the measure (the lookback period). The Margin Group consulted on the majority of the individual parameter choices in order to ascertain which combination provided the greatest information to end users, within a computationally tractable framework for CCPs to provide in regular disclosures. The consultation feedback has been incorporated in the parameter settings described above.

The full set of parameter inputs, potential choices and final selection are summarised in Table A.1.

Parameter inputs, potential choices and final selection

Table A.1

Parameter choices		Description	Options considered	Option(s) chosen
Responsiveness measure	Large call window	The time period over which we measure increase in margin	<ol style="list-style-type: none"> 1. A relatively short window, eg one day or five days, consistent with short-term liquidity needs 2. A longer window, eg five or 20 days, consistent with liquidity measures used elsewhere (eg Liquidity Coverage Ratio) 	A large call window of one business day and large call window of 20-business days
	Observation period	The time period over which large calls in IM are observed	<ol style="list-style-type: none"> 1. A recent period, eg the largest IM call in the past quarter 2. A longer period, eg the largest IM call observed in the past year 	A three-month period and a one-year period
	Product vs portfolio	The risk metric could be applied at single product level or to synthetic or real portfolios where multiple contracts could net each other	<ol style="list-style-type: none"> 1. Product 2. Static portfolio (ie portfolio whose composition does not change over time, eg real portfolio at a certain date or a synthetic portfolio) 3. Dynamic portfolio (ie real CM portfolio whose composition changes based on new trades or repositioning) 	Disclosure for the most relevant products
Volatility risk metric	VaR or Vol	The risk metric applied to measure volatility	<ol style="list-style-type: none"> 1. A percentile metric (eg 99th percentile), which captures tail events (VaR) 2. Standard deviation, which captures a range of market moves (Vol) 	Standard deviation
	Lookback period	The time period used to calibrate the volatility risk measure	<ol style="list-style-type: none"> 1. A relatively short window (eg 90 calendar days), which provides information about recent market changes and will be more responsive 2. A longer window (eg two years), which provides information about what CMs could expect from less recent stress events; it will be less responsive 	A three-month period
	Large call window Observation period Product vs portfolio	The time period over which we measure increase in volatility The time period over which large calls in volatility are observed	N/A – needs to be consistent with what is used for the IM metric; see above N/A – needs to be consistent with what is used for the IM metric; see above N/A – needs to be consistent with what is used for the IM metric; see above	

Annex B: Original policy proposals published in the Phase 2 consultative report

Original policy proposals addressing transparency and responsiveness of IM in centrally cleared markets

Table B.1

Policy proposal	
1.	Margin simulation tools, commonly used by market participants to estimate margin requirements, should be made available by all CCPs to all clearing members (CMs) and their clients.
2.	Margin simulation tools should include, at a minimum, functionality allowing the following: <ol style="list-style-type: none"> a. The calculation of margin requirements under varying historical and hypothetical market conditions for current and hypothetical portfolios. b. The incorporation of add-on charges in addition to baseline (or “core”) initial margin. CCPs should ensure that margin simulation tools reflect all material components of the underlying quantitative methodologies.
3.	Where legally permissible, CCPs should make margin model documentation available to CMs at a level that can enable them to understand key aspects of the CCP’s margin model and its approach to risk management. This documentation should include the following: <ol style="list-style-type: none"> a. Explanations of the calibration of key model parameters, including any relevant components which affect the size and speed of margin requirement changes during periods of elevated stress. b. The logic, applicable thresholds and data used for the calculation of margin add-ons.
4.	CCPs should publicly disclose and describe the anti-procyclicality (APC) tools used in their model. CCPs should also publicly disclose and describe, at a high level, the model components that affect the level of model responsiveness.
5.	CCPs should provide additional breakdowns of margin-related data through the Public Quantitative Disclosures (PQDs) and report such data more frequently and with shorter reporting lags. All PQD data should be reported consistently and accurately.
6.	CCPs should disclose a new standardised measure of margin responsiveness, as designed by CPMI-IOSCO, alongside the associated changes in market conditions. This disclosure can be made through the PQDs.
7.	CCPs should identify and define an analytical and governance framework, appropriate to their business lines and risk profile, for assessing responsiveness within the broader context of margin coverage and cost, with the framework and parameter choices communicated to relevant authorities. The framework can be used by CCPs and relevant authorities to regularly monitor the performance of initial margin models and trigger the review of initial margin model parameters in case of need.
8.	Where CCPs make use of discretion (eg expert judgement) to override model margin requirements, CCPs should: <ol style="list-style-type: none"> a. Have in place clear governance procedures defining the triggers for the use of such discretion and undertake ex post reviews where such discretion has been applied. CCPs should clearly articulate and define the instances and areas where such overrides may be warranted (including clear definitions of the key decision-makers/who can perform overrides and the extent to which these adjustments are deemed permissible without, for example, requiring a material model change). It can similarly be important that the CCP establishes clear guidelines as well as processes which enable the CCP to identify and monitor the overridden risk variable or model output. b. Publicly disclose relevant information regarding the scenarios where discretion may be applied and the governance procedures used in the application of such discretion. CCPs should proactively share the governance procedures for the application of model overrides in full with relevant authorities. c. Publicly disclose, through additions to the PQDs, the aggregate size and duration of manual margin overrides, as compared with unadjusted IM requirements. The disclosure could be supported by a qualitative explanation of the reasons for the override.
9.	CMs should ensure their clients have sufficient understanding of their margin requirements, including the following: <ol style="list-style-type: none"> a. CMs should ensure their clients have sufficient understanding of CCP margin requirements. CMs should facilitate clients in accessing CCP-provided margin simulators. b. CMs should identify and define an analytical and governance framework, appropriate to their business lines and risk profile, for assessing margin responsiveness, alongside other key factors such as counterparty credit risk, when adjusting client margin requirements.

-
- c. CMs should provide sufficient transparency to their clients regarding the mechanism by which client add-ons are calculated. This should include documentation containing a detailed description of the calibration of any client add-ons (eg through the application of margin multipliers, buffers or internal margin models) and how the triggers or thresholds for their use are set. This understanding should be facilitated through the provision of CMs' own simulators, where appropriate, or private disclosures of the margin requirements clients may be subject to under different scenarios.
 - d. CMs should, without the need for a client request, inform the client with appropriate notice when they are adjusting their calibration of client margin add-ons, and should provide sufficient transparency to their clients when margin requirements have been adjusted relative to those set by the CCP.
 - e. CMs should disclose to their clients backward-looking information on the maximum, minimum and average differences between client margin requirements set by the CM and the margin requirements of the CCP over a defined period of time.
-
10. CMs should disclose additional metrics to the CCPs of which they are members on a quarterly basis with a one/two-month lag.
-

Annex C: Summary of changes to the proposals following consultation

Policy proposal

1. Proposal 1 was updated to reflect that CCPs may not always be able to provide access to margin simulators to clients directly. The proposal was also updated to include the provision of CCP margin simulators to prospective clients and CMs, and to note such access may be paired with appropriate non-disclosure agreements where necessary.
 2. Proposal 2 was updated to clarify expectations around simulator functionality for hypothetical scenarios, the inclusion of systematically applied add-on charges, and transparency on the thresholds for such charges.
 3. Proposal 3 was updated for clarity by replacing “margin model documentation” with “information about margin models” and through the addition of non-exhaustive lists of the types of components CCPs should provide information on. The disclosure in proposal 3 was extended to clients to mirror the disclosure framework in proposal 1. “Where legally permissible” was removed from proposal 3 to reflect the fact that legal permissibility applies equally to each proposal. Text to this effect was added to Section 4 for completeness.
 4. Proposal 4 was not updated following consultation feedback.
 5. Proposal 5 was updated to explicitly include in the proposal itself the proposed new data fields and a description of the additional details and breakdowns that would be expected. Additionally, recommendations on the reporting frequency and lag were removed.
 6. Proposal 6 was updated such that the disclosure should: be made at product level; be made under both a three-month and a one-year observation period; prioritise the most relevant products; include publication of metrics associated with large call windows of both one and 20 business days; represent volatility by the standard deviation of one-day returns over the prior three calendar months. The proposal was also updated to include a more granular disclosure from CCPs to regulators, upon request.
 7. Proposal 7 was updated such that CCPs should gather views from market participants when designing or making material changes to their framework for assessing margin responsiveness. Additionally, the term “internal” was added to clarify that the framework is not intended to be made public by CCPs.
 8. Proposal 8 was updated such that CCPs should gather views from market participants on the design of the governance procedures and the results of any ex post reviews described in the proposal. The proposal was also updated by: amending proposal 8c such that CCPs disclose to relevant authorities only the aggregate size and duration of manual margin overrides, and inserting 8d such that CCPs provide CMs with a qualitative explanation of the reasons for any overrides they are subject to. For clarity on the primacy of CCPs’ use of discretion to ensure adequate coverage, we removed the reference to “triggers” and replaced “scenarios” with “instances”.
 9. Proposal 9 was updated to reflect that CMs should provide sufficient transparency to their clients on the way client margins are calculated by facilitating access to CCP disclosures and, where client margins deviate from those that would be charged by CCPs, sharing information on the calculation of client margins. The proposed disclosure in original proposal 9e was incorporated in updated proposal 9b to reflect that this disclosure only pertains to cases where client margins deviate from those that would be charged by CCPs.
 10. Proposal 10 was updated to highlight the value of standardised and timely disclosures from CMs to CCPs. Recommendations on the timing and frequency of these disclosures were removed.
-

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Sasha Mills

US Commodity Futures Trading Commission

Richard Haynes

Members

Reserve Bank of Australia

Benn Robertson

Bank of Canada

Alper Odabasioglu

European Central Bank

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Yolanda Constantine

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