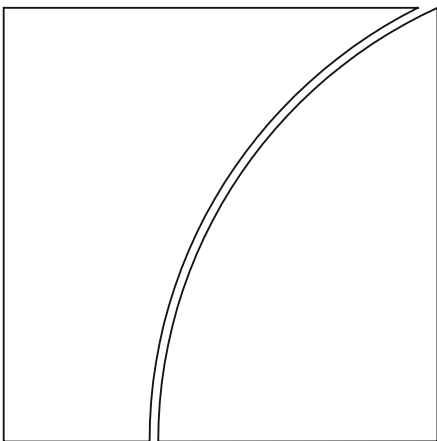


Committee on
Payments and Market
Infrastructures

Board of the International
Organization of Securities
Commissions



Streamlining variation
margin in centrally
cleared markets –
examples of effective
practices

February 2024



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Executive summary

In September 2022, the Basel Committee on Banking Supervision (BCBS), BIS Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) published the final report on the *Review of margining practices*¹ ("Phase 1"). This report outlined six areas for further policy work ("Phase 2"). As part of this further policy work, CPMI-IOSCO has explored ways to foster market participants' preparedness for above-average variation margin (VM) calls through the efficient collection and distribution of VM in centrally cleared markets. To further improve clearing members (CMs) and clients' preparedness for VM calls, this work has aimed to (i) understand the existing practices of central counterparties (CCPs) and CMs regarding the collection and distribution of centrally cleared VM and (ii) present possible ways to improve centrally cleared VM call and collection processes.

This paper presents CPMI-IOSCO's findings. It describes eight examples of effective practices identified by CPMI-IOSCO for CCPs and their CMs regarding VM processes and transparency (Table 1). These examples of effective practices are intended to inform CCPs as they design their VM call and collection processes in line with the PFMI and 2017 *Resilience of central counterparties (CCPs): Further guidance to the PFMI*² (the "CCP resilience guidance") by providing examples of processes or behaviours which illustrate how these standards and guidance may be met. The effective practices have been informed by the responses to three surveys issued by CPMI-IOSCO to CCPs, CMs and end user clients. They are not intended to create additional standards for financial market infrastructures (FMIs), nor to provide guidance on existing standards. CPMI-IOSCO's findings do not represent an assessment of current CCP practices.

Examples of effective practices

The eight effective practices identified from the analysis of the information collected cover several aspects of cleared VM practices, including scheduled and ad hoc intraday (ITD) VM calls,³ the use of excess collateral held at CCPs to meet VM requirements, the pass-through of VM by CCPs,⁴ and CCP-CM and CM-client transparency regarding VM processes.

The evidence from the survey suggests that CCPs may not be fully implementing the existing guidance related to VM practices. Therefore, CPMI-IOSCO believes that publishing a discussion paper that provides examples of effective practices may help further inform CCPs and relevant authorities as CCPs design their VM processes.

¹ Available on the BIS website (www.bis.org/bcbs/publ/d537.htm) and on the IOSCO website (www.iosco.org/library/pubdocs/pdf/IOSCOPD714.pdf).

² Available on the BIS website (www.bis.org/cpmi/publ/d163.pdf) and on the IOSCO website (<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD568.pdf>).

³ For the purposes of the surveys used for this report, ad hoc/unscheduled ITD calls were defined as ITD margin call which are either not scheduled at all or are called in a time slot which is identified in advance but not ordinarily used by the CCP to run a margin call.

⁴ "Pass-through of VM" refers to the settlement of gains and losses through the collection of VM from participants whose positions have lost value and payments to participants whose positions have gained value. For the purposes of this report, a CCP is deemed to pass through the VM from a margin call process when the payment of VM to CMs due to receive funds occurs in the same payment cycle and in the same currency as the obligation and payment from the CMs who owe funds to the CCP.

Effective practices	
1.	Increasing the predictability of ITD margin calculations and collections to the extent practicable. This could be achieved by using, or increasing the frequency of, scheduled ITD margin calculations and collections where appropriate, ^{1 2} after carefully considering the trade-off between the following: <ul style="list-style-type: none"> a. the increased operational burden associated with making more scheduled ITD calls, as well as the positive impact of using ad hoc calls when it is prudent; and b. the corresponding decrease in the probability of ad hoc ITD calls, as well as the positive impact on clearing members' operational readiness and financial capacity to meet the scheduled calls.
2.	Giving participants sufficient time to manage the liquidity impact of an ITD call, while also considering the need to collect VM on a timely basis in order to mitigate the build-up of current exposures.
3.	Where allowed, practical and efficient, offsetting VM calls against other payment obligations, such as initial margin calls and product payment flows (eg coupons), in order to reduce liquidity demands on participants.
4.	Reviewing its operational practices based on an evaluation of the feasibility and the pros and cons of passing through ITD VM to mitigate the liquidity impact of ITD calls on participants.
5.	Subject to agreement with the CM or client and where legally and operationally feasible, allowing the use of excess collateral to meet ITD VM obligations.
6.	Providing information regarding the CCP's processes and timing for ITD VM calls in order to facilitate its participants' ability to predict and manage liquidity requirements. This could be achieved by clearly defining and making available to participants (through the CCP's rulebook or other relevant documentation) the following: <ul style="list-style-type: none"> a. the circumstances and any related thresholds according to which the CCP may make ITD VM calls; b. the timing and relevant notice periods for its ITD VM calls; c. the CCP's processes and rules concerning the netting of payments across margin accounts for each type of margin call, where excess collateral can be used to meet VM requirements, and any other provisions which have an impact on the amounts to be called from CMs; and d. granular information to help CMs understand the composition of VM calls, which may include items such as: a unique identifier to track the call across the CCP's systems, an indicator of whether the call relates to initial margin/variation margin/default fund/rights of assessment/other, a house/client account indicator, underlying unique portfolio/account identifiers, details of any offsets netted against other payments (such as other margin calls, securities deliveries and receipts or coupon payments), a breakdown of the calculation which sets out the individual elements comprising the total, the forms of eligible collateral or the quantity and forms of eligible excess collateral which may be used to satisfy the call, and details of the deadline(s) for meeting the call.
7.	Seeking feedback on the CCP's VM practices from its participants and other relevant stakeholders (eg through risk committees or other established mechanisms) in order to aid the CCP's assessment of the trade-off between managing its own risks and the interests of its participants.
8.	Providing transparency to clients regarding the CM's processes and timing of ITD VM calls, which may facilitate clients' ability to predict and manage liquidity requirements. This could be achieved by clearly defining and making available to clients details of the following aspects of the VM calls it issues: <ul style="list-style-type: none"> a. its practices and procedures for the calculation and collection/payout of VM; b. schedules for timely payment that its clients may be required to meet; and c. its rules and practices concerning: <ul style="list-style-type: none"> i. the usage and forms of excess collateral eligible for meeting VM calls; ii. acceptance and transformation of non-cash collateral for the purposes of meeting VM calls; and iii. netting arrangements across client accounts
¹ This should be without prejudice to the authority of a CCP to make unscheduled intraday margin calls to participants in accordance with its rules and procedures. See PFMI Principle 6 Key Consideration 4 and Section 2.1.	
² See Effective Practice 6 for other possible measures for increasing the predictability of ITD margin calculations and collections	

Organisation of the report

The remainder of this report is organised as follows: Section 1 provides background information on the various international workstreams on margin practices currently under way, the scope of the VM streamlining work and an overview of VM outreach survey respondents. Section 2 sets out the effective practices alongside supporting evidence from the outreach surveys and details of the relevant sections from the PFMI⁵ and CCP resilience guidance⁶ and Section 3 sets out the questions and process for providing feedback.

1. Introduction

1.1 Review of margining practices

In September 2022, BCBS-CPMI-IOSCO published the final report on the *Review of margining practices*⁷ ("Phase 1"). This report outlined six areas for further policy work ("Phase 2"), which is being carried out by the BCBS-CPMI-IOSCO Margin Group (the "Margin Group"), the CPMI-IOSCO Policy Standing Group (PSG), the BCBS-IOSCO Working Group on Margin Requirements (WGMR) and the FSB Working Group on Margin Preparedness (WGMP) as set out in the table below. This report sets out the findings of the follow-up workstream on streamlining VM processes in centrally cleared markets.

Margining practices follow-up work Table 2

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 VM processes	CPMI-IOSCO Policy Standing Group	BCBS-IOSCO Working Group on Margin Requirements
Evaluating the responsiveness of IM models to market stresses	BCBS-CPMI-IOSCO Margin Group	BCBS-IOSCO Working Group on Margin Requirements

Given that the WGMR has been considering streamlining VM processes in non-centrally cleared markets, due consideration has been given to the outcome of the WGMR analysis in order to ensure consistency and coordination.

⁵ Available on the BIS website (www.bis.org/cpmi/publ/d101a.pdf) and on the IOSCO website (<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD377-PFMI.pdf>).

⁶ Available on the BIS website (www.bis.org/cpmi/publ/d163.pdf) and on the IOSCO website (<https://www.iosco.org/library/pubdocs/pdf/IOSCOPD568.pdf>).

⁷ Available on the BIS website (www.bis.org/bcbs/publ/d537.htm) and on the IOSCO website (www.iosco.org/library/pubdocs/pdf/IOSCOPD714.pdf).

1.2 Scope of the VM streamlining follow-up work

CPMI-IOSCO has sought to help enhance the liquidity preparedness of market participants by exploring ways to foster their preparedness for above-average VM calls through the efficient collection and distribution of VM in centrally cleared markets.

To achieve this, CPMI-IOSCO set objectives for the work to (i) understand the existing practices of CCPs and CMs regarding the collection and distribution of cleared VM; and (ii) identify possible ways to improve cleared VM call and collection processes. Themes the work has focused on include:

- a stocktake of current cleared VM collection and distribution practices;
- VM pass-through processes and VM netting by CCPs;
- cleared VM payment processes between CMs and clients;
- interactions with other CCP processes that may affect liquidity demands on participants;
- the impact of ITD and ad hoc cleared VM calls on CMs and clients;
- considerations on the transparency and predictability of VM calls;
- the usage of excess collateral;
- the possible use of non-cash collateral and cash in a currency other than the currency of the obligation; and
- the scope for alignment through the identification of differences in CCP and CM practices with regards to VM and ITD margining.

To support the Phase 2 work in this and other workstreams, the Margin Group and CPMI-IOSCO developed a joint survey targeted to CCPs, with CPMI-IOSCO developing two further VM-related surveys for CMs and clients. These surveys complemented the quantitative and qualitative data collected during Phase 1 with additional qualitative information. Annex A contains a list of survey questions issued to CCPs, CMs and clients.

1.3 Survey respondents

Overall, 28 CCPs, seven CMs and three clients responded to the surveys. This section provides an overview of the types of respondents in each category. The low number of responses from CMs and clients has made it a challenge to draw definitive conclusions on some issues, and further engagement with industry on the practices identified in this report will be needed.

In addition to the survey responses, evidence collected during Phase 1 of this work and from industry papers were taken into account when documenting the effective practices.

1.3.1 Overview of CCP respondents

In total, 28 CCPs with a wide regional representation responded to the survey. Responses were received from Europe (CH, DE, ES, FR, IT, SE, TR, UK) the Middle East (AE, SA), Asia-Pacific (JP, HK, IN, NZ, SG, TW), and North and South America (AR, BR, US). Combined, these CCPs held approximately USD 1 trillion in aggregate cleared initial margin (IM), approximately two thirds of which was for client accounts.

A majority of the respondents are multi-asset class CCPs, with the remainder clearing products in only a single specific asset class. On average, respondents clear products in four asset classes, with a maximum of seven out of a possible eight classes represented. The most prevalent asset classes cleared among the responding CCPs were exchange-traded derivatives (ETDs), equities (cash), and repo and securities lending.

Respondents varied widely in terms of the scale of their clearing business. Using IM as a proxy for the level of activity and risk exposure managed by the CCP,⁸ IM held by respondents ranged from less than USD 1 million to over USD 200 billion, with an average of approximately USD 38 billion.

Approximately 50% of respondents had fewer than 75 direct CMs, while the rest had between 75 and 225.⁹ The analysis of the profiles of the direct CMs shows that 71% of responding CCPs' CMs provide client clearing services. On average, 46% of respondents' CMs are non-bank financial intermediaries (NBFIs), and 26% are foreign entities to the CCP's home jurisdiction.

1.3.2 Overview of CM respondents

In total, seven CMs responded to the survey, one of which did not provide responses to questions requiring quantitative information regarding details of CCP memberships or asset classes offered to clients. In terms of geographical distribution, responses were received from Europe (CH, UK), North America (US) and the Pacific region (AU).

Combined, these CMs held approximately USD 372 billion in aggregate cleared IM requirements, approximately 70% of which was for client accounts. Of the IM held for client accounts, approximately 77.5% was for non-bank financials, 17% was for banks and 5.5% was for non-financial counterparties.

The respondents were CMs of between four and 65 CCPs for house business (with an average of 37 CCPs) and between zero and 65 CCPs for client positions (with an average of 33).

Asset classes cleared by the respondents were diverse and included all major asset classes.

1.3.3 Overview of client respondents

Only three clients responded to the survey, one from the Pacific region (AU) and the other two from Europe (DK, FR). One actively clears derivatives through eleven CCPs, the second clears through three CCPs and the third clearing through two CCPs. One respondent is a bank, one is an asset management firm and one is an energy firm.

One respondent held a total aggregate cleared IM requirement across all CCPs of less than USD 1 billion and a second respondent indicated IM requirements between USD 100 and 500 billion as of 31 December 2022. The other respondent did not provide any margin data.

2. Survey findings and identified effective practices

Several conclusions can be drawn from the survey responses with respect to the impact that cleared VM processes have on liquidity demands and planning for CCPs, CMs and their clients. However, many of the key issues raised by the respondents are covered at a high level either in the PFMI or in more detail through the CCP resilience guidance.

This section summarises the findings from the survey and describes eight effective practices identified by CPMI-IOSCO. It also maps these examples of effective practices to the PFMI and CCP resilience guidance. Further consideration of the effective practices could enhance the degree to which the outcomes intended by the PFMI and CCP resilience guidance are achieved in practice, as well as mitigate, where possible, the impacts that CCPs' existing ITD VM practices have on the liquidity management processes of the various stakeholders.

⁸ Two CCP survey respondents did not provide IM data.

⁹ Two CCPs reported having more than 1,000 CMs.

2.1 Frequency, scheduling and timing

The timing and frequency of VM calls represents a balancing act for CCPs in terms of their need to collect VM and the liquidity impact for participants. The frequency, timing and predictability of a CCP's ITD VM calls (whether scheduled or issued on an ad hoc basis), particularly during periods of elevated volatility, can create additional liquidity demands on participants, which can be challenging to meet and potentially exacerbate stressed market conditions.

There are also trade-offs when considering the amount of time a CCP gives its CMs to meet both scheduled and unscheduled ITD VM calls. In this case, the trade-off is between providing a longer notice period which reduces the operational challenges faced by participants, and the need to collect VM promptly, especially when markets move rapidly. Short turnaround windows can place stress on CMs and clients, especially those without prearranged and reliable funding arrangements for sourcing liquidity on a timely basis under stressed market conditions or across different time zones.¹⁰

The PFMI and CCP resilience guidance acknowledge at a high level the importance of these trade-offs. On the need for ITD VM calls, Key Consideration 4 of PFMI Principle 6 states that "a CCP should mark participant positions to market and collect variation margin at least daily to limit the build-up of current exposures" and, further, that "a CCP should have the authority and operational capacity to make intraday margin calls and payments, both scheduled and unscheduled, to participants". However, paragraph 5.2.25 of the CCP resilience guidance notes that "[...] a CCP should take into account how these arrangements could have adverse implications for the liquidity positions of its participants and the relevant market [...]. A CCP should take a holistic approach to structuring and applying its variation margin arrangements", adding in paragraph 5.2.26 that "[...] a CCP should give consideration to how its intraday variation margin arrangements interact with other components of its margin system and how it can [...] limit the potential for liquidity implications, adverse to its participants or their customers".

Paragraph 5.2.26 also states that "a CCP should seek to increase the predictability of its variation margin calls and payments in order to enhance participants' operational readiness and financial capacity to make and receive such payments. For example, a CCP could use scheduled margin calculations and collections on an intraday basis, rather than relying on unscheduled calculations and collections". Paragraph 5.2.27 states that "[...] when determining the timing of the collection and payment of variation margin, a CCP should take into account the operational and liquidity implications for its participants".

Paragraphs 5.2.22–24 of the CCP resilience guidance concern monitoring and addressing ITD exposures, including the identification and implementation of clear triggers and thresholds to recalculate margin requirements ITD.

2.1.1 Survey analysis – Types and frequency of ITD VM calls

Of the responding CCPs, 68% execute at least one scheduled ITD call per day. As many as five ITD calls can be made on a given day, and the schedule can be specific to each asset class or service. Among the 32% of responding CCPs that do not execute scheduled ITD variation margin calls, seven can make ad hoc calls across their memberships or at the CM level when certain thresholds are met.

Only three of the 27 CCPs reported not having procedures related to ad hoc ITD calls. Of the remaining CCPs, 46% issue ad hoc calls to one or a few CMs only, while 54% may issue them to the entire membership.

CCPs indicated that changes to a CM's exposure levels, its creditworthiness, changes in the value of collateral and market volatility are the most common factors that lead to triggering ad hoc ITD calls. Forty-three per cent of responding CCPs have pre-defined conditions that, if breached, would trigger an ad hoc ITD call. The conditions are determined in advance but are very diverse and may refer to metrics or triggers such

¹⁰ CPMI-IOSCO acknowledges that the schedule of ITD calls is typically constrained by the cut-off times for the payment arrangements used by the CCPs.

as uncovered exposure of a CM, either in absolute terms or as a percentage of its margin; breach of a pre-defined risk limit, which can be specific to each member; backtesting performance on a given margin account; or sufficiently large price moves against the margin parameters of key contracts. In some cases, the applicable thresholds can be lowered if the CCP believes the market conditions justify it. The values of the thresholds communicated vary greatly from one CCP to another. Contrary to the responses received in the CM survey, most CCPs indicated that the conditions triggering the ad hoc ITD calls were made known to their CMs.

Among the CCPs that have rules allowing for ad hoc ITD calls, some indicated never having issued any. Among the CCPs that had, the usage of ad hoc ITD calls varied greatly across CCPs, with some issuing them fewer than 10 days in a year while others issued them every day. Overall, ad hoc calls were typically made to one or a few CMs rather than to the entire membership.

2.1.2 Survey analysis – Notice periods between VM calls and payments

Several CCPs confirmed that the notice periods they give CMs to pay VM calls vary according to the CCPs' different business lines or underlying products. Overall, the responses indicate that end-of-day (EoD) calls are usually due to be paid during the next clearing session. For ITD calls, the notice period granted to CMs can vary from 10 minutes to up to two and a half hours. Nevertheless, the majority of CCPs implemented at least a one-hour notice period.

According to 28% of the responding CCPs, the notice period can also differ between scheduled ITD calls and ad hoc ITD calls. For some calls, there is a specific window from the point of the call (eg 60 or 90 minutes), while for others payment can be made until the end of day. Only one CCP also indicated that it adjusted the notice period using discretion. The timing of ITD payments is typically constrained by the cut off times for payment and settlement arrangements used to meet the call.

2.1.3 Liquidity impact of VM processes and interaction with other CCP processes

CMs were surveyed on the liquidity impact of cleared VM processes. In addition, all three categories of respondents were surveyed on their views of how interactions between VM and other CCP processes, such as trade allocation or give-up processes, could affect liquidity demands.

There was mixed feedback regarding the scope to align VM payments with other payment flows. Only 14% of CCPs indicated misalignments of VM payment and collection timings with other payment flows, including IM and securities/derivatives cash flows, or the settlement of the sale of securities to meet cash requirements. Eleven per cent of CCP respondents indicated that there would be scope to improve the coordination amongst CCP obligations and other CM/client payment obligations.

A key factor determining the amount to be collected in a VM call is whether and to what extent gains and losses are netted across a CM's clearing accounts. Approximately 61% of responding CCPs to some extent net the gains and losses between CMs' clearing accounts before issuing the call. Of these, a quarter of CCPs net gains and losses across client and house accounts, in addition to netting across client accounts. Only 7% of the responding CCPs reported that their netting process differs between ITD calls and EoD/beginning-of-day (BoD) calls.¹¹

CCPs indicated that their legal frameworks were quite different and, as a result of some regulations, CCPs either are not required (and therefore may be unable) to distinguish between client and house accounts, or are prohibited from netting VM requirements between a CM's house and client accounts. Some CCPs cite operational barriers to distinguishing between CMs' house and client flows.

¹¹ For the purposes of the surveys for this report, BoD calls were defined as daily margin calls usually called at the "beginning of the day", on the basis of prices and positions updated in the morning. Cash settlements are included. EoD calls were defined as daily margin calls usually called at the "end of the day", on the basis of prices and positions fixed at the previous close of business. Cash settlements are included.

There was general agreement that trade allocation or give-up processes¹² affect the calculation of VM, with most CM respondents (71%) and the majority of CCP respondents (68%) indicating that this was the case. Of the three client respondents, one indicated that give-up protocols for trades between clients, executing brokers and CMs could affect VM calculation.

CMs mentioned various other issues, including that their clients do not pay ITD VM, and therefore the CM's liquidity needs may increase; and that not all CCPs net and synchronise product cash flows, such as coupons, corporate actions or premia, with VM flows which could offset them. This was seen as inefficient from a liquidity management point of view, and there can be a mismatch between the timing of VM payments and the execution of collateral substitutions or the return by the CCP of collateral upon request by the CMs.

Most CM respondents (86%) suggested options to improve the coordination amongst CCP obligations and other CM payment obligations: one respondent suggested netting between IM calls and VM payments from CCPs to CMs on an ITD basis in order to cover liquidity needs; one noted that the difference in calendars (due to public holidays) across the different currencies used for settlement by CCPs could lead to inefficiencies in the amounts collected; one suggested enhanced capabilities in CCP user interfaces to move positions between CMs; one suggested net VM ITD margin calls (as opposed to gross debits), improved transparency regarding the drivers of calls and process standardisation; and one suggested that CCPs could return large excess margin ITD rather than solely collecting it from the CMs.

With respect to VM calculation, CCPs use updated prices or pricing models widely accepted by the market (which are required when a market is traded on a convention that is not a cash price amount, such as swaps) to calculate variation margin requirements. Some CCPs reported that approximations may be used for ITD margin calls or when actual prices are not updated with sufficient frequency.

The offsetting of VM calls with other CCP payment obligations (such as IM calls) also featured in the survey. For 68% of the responding CCPs, IM and VM payments are offset to some degree. This applies to EoD/BoD calls (57% of CCPs), scheduled ITD calls (64%), and ad hoc ITD calls (39%). This affects the calculation of requirements, their communication to the CMs and the CCP's processes for collection of the margin.

There are benefits and costs to offsetting IM and VM. Offsetting allows for the reduction of liquidity requirements, eg where a CM's IM requirement increases but it is also owed VM as a result of mark-to-market gains in its portfolios. However, offsetting may make it difficult to pass through VM unless the CCP only accepts cash collateral in the currency of the obligation. Some CCPs balance these costs and benefits by offsetting IM and VM for ITD calls where they do not pass through the VM ITD.

While CCPs collect and distribute the same amount of VM for EoD/BoD calls, both scheduled and ad hoc ITD calls can see different amounts collected and distributed.

2.1.4 Effective practices

CPMI-IOSCO analysed the survey responses and compared the evidence collected with the existing PFMI and the CCP resilience guidance (detailed in Section 2.1) and identified three effective practices for CCPs on the frequency, scheduling and timing of ITD VM calls.

¹² This is the process of moving a client trade from one CM's books to those of another. It is necessary where a client uses multiple CMs to access a particular market; the client may choose to execute a trade using one agent but ultimately wish to clear the trade using another (or multiple other) CM(s).

Effective practices

- 1. Increasing the predictability of ITD margin calculations and collections to the extent practicable. This could be achieved by using, or increasing the frequency of, scheduled ITD margin calculations and collections where appropriate,^{13 14} after carefully considering the trade-off between the following:**
 - a. the increased operational burden associated with making more scheduled ITD calls, as well as the positive impact of using ad hoc calls when it is prudent; and**
 - b. the corresponding decrease in the probability of ad hoc ITD calls, as well as the positive impact on clearing members' operational readiness and financial capacity to meet the scheduled calls.**
- 2. Giving participants sufficient time to manage the liquidity impact of an ITD call, while also considering the need to collect VM on a timely basis in order to mitigate the build-up of current exposures.**
- 3. Where allowed, practical and efficient, offsetting VM calls against other payment obligations, such as initial margin calls and product payment flows (eg coupons), in order to reduce liquidity demands on participants.**

2.2 Pass-through of VM

"Pass-through of VM" refers to the settlement of gains and losses through the collection of VM from participants whose positions have lost value and payments to participants whose positions have gained value. For the purposes of this report, a CCP is deemed to pass through the VM from a margin call process where the payment of VM to CMs due to receive funds occurs in the same payment cycle and in the same currency as the obligation and payment from the CMs who owe funds to the CCP.¹⁵ Pass-through of VM is only envisaged where the respective payments are in the same currency, as CCPs would otherwise be required to engage in transformation of the collateral received into the currency due to be paid out to receiving CMs.¹⁶ The timely pass-through of VM can help alleviate liquidity pressures on clients and, in particular, CMs (who typically experience a delay between paying margins to a CCP and receiving funds from their clients). Many of the surveyed CCPs do not undertake the pass-through of ITD VM calls, only paying funds to CMs with a positive mark-to-market value in their portfolios after an hours-long delay or after the next overnight revaluation and EoD/BoD margin call process.

The PFMI and existing standards do not explicitly cover the pass-through of VM; however, paragraph 5.2.25 of the CCP resilience guidance notes that "[...] a CCP should take into account how these [VM] arrangements could have adverse implications for the liquidity positions of its participants and the relevant market [...]. A CCP should take a holistic approach to structuring and applying its variation margin arrangements", adding in 5.2.26 that "[...] a CCP should give consideration to how its intraday variation margin arrangements interact with other components of its margin system and how it can [...] limit the potential for liquidity implications, adverse to its participants or their customers". Pass-through of VM could be one solution employed by CCPs to meet these objectives.

¹³ This should be without prejudice to the authority of a CCP to make unscheduled intraday margin calls to participants in accordance with its rules and procedures. See PFMI Principle 6 KC 4 and Section 2.1 above.

¹⁴ See Effective Practice 6 in Section 2.4.2 below for other possible measures for increasing the predictability of ITD margin calculations and collections.

¹⁵ See paragraph 3.6.11 of the PFMI. For the avoidance of doubt, this excludes case in which there is a material time difference between the payments to and from the CCP.

¹⁶ The survey responses summarised in Section 2.3.1 of this report established that CMs would not accept the receipt of VM in another form.

2.2.1 Survey analysis

Thirty-two per cent of CCP respondents pass through VM. Constraints on VM pass-through mentioned by respondents include operational issues (which was the most frequent answer) or issues of a legal or regulatory nature. The operational issues identified were related to the timing of the CCP's own liquidity needs, the possibility of currency mismatches and the potential requirement for transformation of collateral. CPMI-IOSCO also noted that the operational complexity of passing through VM increases with the number of currencies in which the CCP settles payments.

Eleven per cent of the responding CCPs indicated that they are considering or have considered the implementation of VM pass-through for at least part of their businesses.

Only one CCP provided a further assessment of the matter and noted that market infrastructure-related limitations would need to be addressed via further industry work, including the implementation of changes at CMs to modify their processes in order to address the complexity of time zone differences and multiple settlement currencies.

In response to questions concerning key factors affecting their liquidity, several CMs noted that a timing mismatch between payment and receipt of funds from a CCP was a significant issue, with one specifically mentioning that VM payments from CCPs were not made until the following day.

2.2.2 Effective practice

In the light of the differences between key aspects of CCPs such as currencies, trading hours and eligible collateral, and taking into account the opposition voiced by a number of CCPs in Phase 1 and Phase 2 of this work, universal adoption of VM pass-through is unlikely.

However, passing through VM may be a viable option for some CCPs under the specific conditions described below:

1. VM exchanges are collected in cash in the same currency as the underlying exposure, and payment obligations occur during the operating hours of the payment and settlement arrangements used with respect to that currency.
- b. ITD pricing and settlement processes do not use any approximation.
- c. Collection of VM to cover current exposures can be disentangled from the collection of IM to cover potential future exposures, as the latter cannot be passed through.
- d. Operational processes can be established to ensure that ITD pass-through is considered definitive settlement instead of collateralisation.¹⁷

Where these conditions are met, the CCP may wish to consider the advantages and drawbacks of VM pass-through. For example, CCPs that allow the use of excess non-cash collateral to offset ITD VM requirements may face elevated collateral liquidation demands in order to ensure that obligations to surviving CMs are met when managing a default. However, pass-through of VM may not be compatible with the CCP's other practices that help mitigate a CM's liquidity needs resulting from ITD VM calls (such as CMs' ability to pledge non-cash collateral to offset VM calls, the use of cash collateral that is denominated in a currency different from that of the underlying exposure or the commingling of other obligations of the CCP that may allow for higher netting or offsetting efficiency). Therefore, any agreement between CCPs and CMs to accept non-cash collateral to offset ITD VM calls should be carefully structured to balance the decreased liquidity burden on CMs with the potential for increased collateral liquidation needs of the CCP. CPMI-IOSCO has therefore identified the following effective practice for CCPs.

¹⁷ For further information, see European Association of CCP Clearing Houses (EACH) "CCP resilience during the Covid-19 market stress", June 2021, pp 10–11, as well as Explanatory Note 3.8.6 of the PFMI and, more generally, Principle 8: Settlement finality.

Effective practice

4. Reviewing its operational practices based on an evaluation of the feasibility and the pros and cons of passing through ITD VM to mitigate the liquidity impact of ITD calls on participants.

2.3 Excess collateral and collateral eligibility

Most CCPs permit the use of excess collateral (cash and non-cash) deposited by a CM to meet ITD margin call requirements. Where available, this procedure can alleviate, at least temporarily, liquidity pressures on CMs and their clients by delaying or mitigating the need for an additional VM obligation and can reduce the volume of ITD calls issued by the CCP.¹⁸

The intention of the CCP resilience guidance is to acknowledge the potential benefits of these arrangements, stating in paragraph 5.2.26 that “[...] where a CCP has collected additional collateral ex ante that mitigates the build-up of current exposure intraday, this can be a factor in reducing the need for unscheduled intraday variation margin calls”.

2.3.1 Survey analysis

A majority of CCP respondents (79%) indicated that they allow for excess collateral deposited by CMs to be used to offset VM requirements to some extent. Sixty-one per cent of CCP respondents indicated that they allow for excess collateral deposited by CMs to be used to offset VM requirements for each type of margin call, ie for ad hoc, EoD/BoD and scheduled ITD calls.

Half of the CCP respondents who indicated that they allow for excess collateral deposited by CMs to be used to offset VM requirements also indicated that there are restrictions on these offsets if the currency and/or type of asset held does not match the currency and/or other collateral requirements of the VM call.

Most CM respondents (71%) indicated that they allow excess client collateral to be used to offset VM obligations associated with their clients’ activity. However, 43% of CM respondents indicated that there were impediments to the offsetting of clients’ VM payments against excess collateral, including legally mandated segregated margin regimes (depending on where the CCP, CM or client is domiciled); the requirement that only excess collateral in the form of cash (not securities) may be used to offset VM; and, bilateral agreements between CMs and clients that prohibit the use of excess client collateral for VM calls.

A majority of CCP respondents (64%) indicated that VM is collected and paid in cash in the currency of the obligation. It was noted that when VM is not collected and paid in the same currency, the EoD/BoD and ITD processes differ: the EoD/BoD process still requires cash collateral to meet the obligation, whereas the ITD margin collection process allows both cash (including in major currencies other than the currency of the obligation) and excess collateral (whether cash or non-cash) to meet obligations.

It is noted that should a CCP accept non-cash collateral or alternative currencies for ITD margin calls, the collection of cash in the currency of the obligation in the following EoD/BoD margin call may cause an increase in the liquidity needs of the participants because the non-cash collateral or alternative currency would not be returned before the cash payment settles. While this practice may reduce liquidity requirements for CMs and clients ITD, it may create inefficiencies during the following EoD/BoD VM process.

CCPs overwhelmingly noted that they cannot (or will not) pay out VM gains in non-cash collateral. One CCP mentioned emergency circumstances, limited to very specific situations, in which the normal process of using a specific currency may be altered. In these specific situations, this CCP has the ability to pay VM in non-cash collateral up to a given amount.

Overall, views expressed by CM and CCP respondents against the use of non-cash collateral cited regulatory and legal prohibitions, operational complexities, potential inconsistencies with the PFMI liquidity

¹⁸ However, as noted in paragraph 4.2.5. of the CCP resilience guidance (pp 25–26), CCPs should not assume that “excess collateral posted by a participant will be available to meet losses or to make payment obligations” in their credit and liquidity stress tests.

principle and the need to convert the alternative collateral in the event of a CM's default, potentially leading to a short-term increase in liquidity demands on CCPs.

The survey did not elicit many comments on collateral eligibility. Two of the three clients responding to the survey indicated that additional flexibility in collateral eligibility for VM calls would be an improvement.

2.3.2 Effective practice

The effective practice for CCPs described below should be subject to opt-in by participants, as some CMs or clients may prefer to not allow their excess collateral to be used for VM calls during business-as-usual periods. Whilst the majority of CCPs surveyed allow excess collateral to be netted against ITD VM calls, CPMI-IOSCO has included this effective practice to enhance consistency with the existing guidance for those CCPs that do not allow excess collateral to offset VM obligations.

Effective practice

5. Subject to agreement with the CM or client and where legally and operationally feasible, allowing the use of excess collateral to meet ITD VM obligations.

2.4 CCP-to-CM transparency and engagement with participants

In parallel with the Margin Group work on centrally and non-centrally cleared IM transparency, CPMI-IOSCO have also sought to understand where greater transparency regarding CCP VM processes would aid liquidity preparation for CMs and clients (Section 2.5 also covers transparency, but from the CM-client perspective). A number of key areas where greater transparency is sought from CCPs emerged from the survey analysis and have been set out in the effective practice described in Section 2.4.2.

The CCP resilience guidance covers aspects of transparency. Paragraph 5.2.26 points towards one outcome of providing sufficient transparency where it covers the predictability of margin calls, stating that "a CCP should seek to increase the predictability of its variation margin calls and payments in order to enhance participants' operational readiness and financial capacity to make and receive such payments". More directly, paragraph 5.2.28 states that "a CCP's variation margin arrangements should be documented and disclosed with the same rigour and transparency as are applied to all other components of its margin system".

The CCP resilience guidance also sets out expectations concerning the governance of margin models and processes and calls for CCP disclosures on margin models (including on the predictability of margin requirements) and effective feedback mechanisms, enabling participants and other relevant stakeholders to provide the CCP with feedback on its margin models and processes (paragraphs 2.2.19–20, 2.2.22, 2.2.24–25 and 2.2.27).

2.4.1 Survey analysis

Both the CM and the client surveys set out questions on the transparency and predictability of VM requirements. Overall, CMs responding to the survey were almost equally split between those who thought that CCPs' practices for VM were sufficiently transparent and those who disagreed.

VM calculations used for BoD VM payments and BoD/EoD VM practices were generally perceived to be transparent, except for where CCPs net VM with cash flows linked to settlements of transactions, which can make the individual elements comprising the amount required less transparent for participants. CMs identified some possible avenues for improving transparency. Two identified that ITD VM practices required standardisation, and one suggested that VM calls should be accompanied by reporting on the account and positions driving the VM call and the relevant timing and sourcing of the market prices behind the recalculation in order to help CMs substantiate the calls.

CMs judged it either not possible to predict the timing of ad hoc ITD calls or that it could only be predicted with poor accuracy, which runs contrary to the CCP survey responses that indicated that the

conditions for ad hoc ITD calls are determined in advance and communicated to members. CMs identified some possible avenues for improving the predictability of the timing: four say there should be greater standardisation of timing for ad hoc calls; one CM called for greater transparency on the scenarios or circumstances leading to use of ad hoc calls; one CM called for greater consistency in the application of CCPs' VM policies and timelines; and two CMs called for additional information to be made available in the CCP margin simulation tools.

Similar responses were received regarding insufficient predictability of the amounts to be paid in the calls (it was either impossible to predict or possible only to a poor degree of accuracy). CMs identified the following potential avenues for improving the predictability of the amount of VM required: three called for more transparency regarding CCP margin models /margin call calculation; one said that CCPs should share information to help their preparation for ad hoc margin calls; two called for CCPs to make predictive margin tools available, with one suggesting the inclusion of what-if scenarios in CCP margin calculators (although provision of this functionality would be more beneficial with respect to IM requirements and is a proposed recommendation of the Margin Group's consultative report 'Transparency and responsiveness of initial margin in centrally cleared markets'); and two CMs mentioned updating prices in real time for marking ITD portfolios to market.

Client views on the transparency and predictability of VM calls were broadly similar to those of the CMs. Among the three client respondents, one considered CM practices to be transparent, whereas the other two thought they were not. One client considered that, to increase transparency, clients should be provided with a comprehensive simulation tool, while another called for increased transparency regarding what triggers ad hoc ITD calls, in particular in relation to market volatility.

Regarding the predictability of the timing and magnitude of ad hoc margin calls, clients consider it either not possible to predict the timing of ad hoc calls or still possible, but with limited accuracy. One client recommended that CMs provide a clear overview of the time schedules as well as the thresholds and triggers for ad hoc calls.

While not explicitly mentioned in the survey responses, one way to promote CCP transparency would be to ensure that VM practices fall within the scope of the mechanisms through which participants and other relevant stakeholders provide feedback on margin processes to the CCP.

2.4.2 Effective practices

The effective practices described below are multi-faceted and respond to several issues identified in survey responses on CCP-CM transparency.

Some of the items listed under 6 (d) are based on both survey results and discussions amongst CPMI-IOSCO members. These items may be considered examples of static data as they are likely to be common to most types of margin call. Their presence here does not indicate a view on whether the data should be included in the notice for each margin call and could be made available through an alternative medium. CPMI-IOSCO has therefore identified the following effective practices for CCPs.

Effective practices

6. Providing information regarding the CCP's processes and timing for ITD VM calls in order to facilitate its participants' ability to predict and manage liquidity requirements. This could be achieved by clearly defining and making available to participants (through the CCP's rulebook or other relevant documentation) the following:

- a. the circumstances and any related thresholds according to which the CCP may make ITD VM calls;**
- b. the timing and relevant notice periods for its ITD VM calls;**
- c. the CCP's processes and rules concerning the netting of payments across margin accounts for each type of margin call, where excess collateral can be used to meet VM requirements, and any other provisions which have an impact on the amounts to be called from CMs; and**

- d. **granular information to help CMs understand the composition of VM calls, which may include items such as: a unique identifier to track the call across the CCP's systems, an indicator of whether the call relates to initial margin/variation margin/default fund/rights of assessment/other, a house/client account indicator, underlying unique portfolio/account identifiers, details of any offsets netted against other payments (such as other margin calls, securities deliveries and receipts or coupon payments), a breakdown of the calculation which sets out the individual elements comprising the total, the forms of eligible collateral or the quantity and forms of eligible excess collateral which may be used to satisfy the call, and details of the deadline(s) for meeting the call.**

7. Seeking feedback on the CCP's VM practices from its participants and other relevant stakeholders (eg through risk committees or other established mechanisms) in order to aid the CCP's assessment of the trade-off between managing its own risks and the interests of its participants.

2.5 CM-to-client transparency

CPMI-IOSCO has sought to understand where greater transparency can be achieved for VM processes in the CM-client relationship. Improvements in the level of transparency in the CM-client relationship, alongside those applicable to the CCP-CM relationship, can aid liquidity preparation for clients participating in cleared markets. Several areas where greater transparency is sought by clients from CMs emerged from the survey analysis and have been set out in the effective practice proposal in Section 2.5.2.

In many cases, there are similar issues surrounding the level of transparency between CMs and their clients as seen in the CCP-CM relationship. However, given that the PFMI and CCP resilience guidance are not applicable to CMs or clients, this section does not describe relevant international standards and guidance.

2.5.1 Survey analysis

Overall, CMs use the same prices for VM calculations as CCPs. On a daily basis (ie for EoD/BoD calls), CMs issue a call to the client for the amount required by the CCP. Some CMs transform collateral to meet the CCP's eligibility criteria for VM obligations.

However, there are timing differences between when VM is paid to the CCP and when clients pay their CMs the corresponding funds. For EoD/BoD calls, CMs are typically required to pay VM to the CCP in the morning, but the majority of CMs only require their clients to make VM payments later in the day. For ITD margin calls, CMs meet the obligation of the CCP and retain the option to request payment from clients on a timely basis, though it appears that most CMs allow clients to wait until the next EoD/BoD cycle to meet their obligation to the CM.

There were mixed responses from clients about the impact of ITD VM calls on client liquidity management; however, the low number of client responses makes this interpretation difficult. One of the clients indicated that it is not affected by its CMs' practices from a liquidity perspective, whereas the other two consider that they are affected by ITD VM calls (contrasting with the finding that the majority of CMs indicate that they do not ask for ITD payment of VM in most cases). The contradiction between CM and client responses may be due to the possibility that CCP ITD calls are only rarely passed on to clients by CMs on the same day, perhaps only in the most extreme scenarios.

Client respondents consider the timing of ITD ad hoc VM calls and the requirement to post cash as the main factors that could lead to a liquidity shortfall and/or a need to sell assets. One client considers that ad hoc calls are made with short notice and usually for a large amount, while another underlined the fact that CMs do not accept non-cash collateral for ITD calls while its own business model necessitates holding securities rather than cash. These responses converge in recommending more options regarding eligible collateral to

meet ITD ad hoc calls and that daily calls could be predetermined with the setting of a limited or maximum number of calls per day.

Regarding the predictability of the timing and magnitude of ad hoc margin calls, clients consider it either impossible to predict the timing of ad hoc calls, or possible, but with limited accuracy. One client recommended that the CM provide a clear overview of the schedules, thresholds and triggers for ad hoc calls.

2.5.2 Effective practice

Considering the survey responses and further to similar findings from the Margin Group's workstream outreach programme, the key areas where transparency could be improved are set out in the effective practice below. As noted above, CPMI-IOSCO has not developed standards or guidance related to this practice as it falls outside of its remit, but it has identified the following effective practice for CMs.

Effective practice

8. Providing transparency to clients regarding the CM's processes and timing of ITD VM calls, which may facilitate clients' ability to predict and manage liquidity requirements. This could be achieved by clearly defining and making available to clients details of the following aspects of the VM calls it issues:

- a. its practices and procedures for the calculation and collection/payout of VM;**
- b. schedules for timely payment that its clients may be required to meet; and**
- c. its rules and practices concerning:**
 - i. the usage and forms of excess collateral eligible for meeting VM calls;**
 - ii. acceptance and transformation of non-cash collateral for the purposes of meeting VM calls; and**
 - iii. netting arrangements across client accounts**

2.6 Other issues

2.6.1 Regulatory frameworks, scope for alignment between CCPs and other areas

CCPs, CMs and clients were surveyed on the differences between CCPs in their approach to VM processes and the possible scope for alignment between these processes and the applicable regulatory frameworks. Overall, responses were pessimistic about the possibility of alignment in CCP processes. In particular, doubts were expressed about the likelihood of alignment on the timing of payments within a time zone or jurisdiction. Interestingly, the benefits of such alignment were generally seen as operational rather than liquidity related.

Respondents also had the opportunity to voice views on any issues not covered in the survey which could help reduce liquidity pressures resulting from VM calls. Few CCP respondents provided responses which generated new suggestions; the majority used the opportunity to re-emphasise points on the scope of accepted collateral, the transparency of VM calculations and the trade-off between scheduled and unscheduled ITD calls.

In response to similar questions about the alignment of CCP processes, 57% of CMs described material divergences in practices and the timing of VM payments across CCPs. These divergences may affect the ability of the CMs or clients using multiple CCPs to meet VM requirements and manage liquidity needs. These differences appear to be greater for ITD calls than for EoD/BoD processes. The areas in which CMs would welcome alignment are: the timing for posting/recalling cash or securities, further standardisation of practices related to netting VM gains against IM requirements and netting across client accounts, greater consistency around the length of notice for ITD margin calls provided by CCPs and, more generally, differences among CCPs' processes for ad hoc/ITD VM calls. Although many ideas were shared to enhance alignment across CCPs' processes, the responses showed little confidence in the feasibility of achieving such alignment.

Two of the three clients that responded to the survey indicated that additional flexibility in collateral eligibility for VM calls would be an improvement.

Few CCP respondents indicated that there were aspects of the regulations applicable to the CCP that affect the liquidity preparedness of market participants or that prevent the CCP from implementing measures that would otherwise benefit market participants' preparedness.

Few CMs indicated regulatory aspects that affect the liquidity preparedness of market participants. Issues identified included: the heterogeneity of client money rules across jurisdictions, divergent interpretations of the LSOC regulation¹⁹ and the valuation/aggregation of underlying portfolios on VM calls. Most CMs (71%) indicated that changes in CCP policies, including increasing transparency regarding thresholds and drivers for ITD ad hoc calls, passing through VM, netting calls across client positions rather than calling only for gross payment obligations, avoiding unscheduled calls or having defined "call times" and making digital assets eligible for use to meet calls, would reduce the liquidity needs arising from VM requirements.

All client respondents indicated that changes in CCP policies, or in policies applying to the CM-client relationship, would reduce the liquidity needs arising from VM requirements. One respondent commented that the regulation applicable to the CM-client relationship was not sufficiently protective of the client. Two clients indicated that increased predictability and transparency of VM practices applied at both CCP and CM levels.

2.6.2 Other feedback

A number of industry stakeholders also provided feedback on issues that CPMI-IOSCO considers are outside the scope of the current work. These issues are described below.

The first issue concerns suggestions for accepting a broader set of non-cash collateral, which were made by several CMs and CCPs. In the case of one responding CCP, reference was made to the possibility of including bank guarantees, which are currently not eligible in certain jurisdictions. The topic of eligible collateral is a much broader issue than CCP ITD VM practices, hence it would go beyond the mandate of the current work.

Some CCPs also flagged the fact that they would need access to central bank facilities, in particular if they needed to transform assets, eg if they had to accept non-cash collateral while paying out cash only. As indicated above, as described in this report on CCP VM practices, CCPs should not engage in collateral transformation for the purposes of VM pass-through; there would be significant risk implications if CCPs offered collateral transformation. However, this is beyond the scope of this workstream, as are policies on access to central banks.

Finally, in relation to the transparency which CCPs should provide to their participants, some respondents mentioned margin replication tools. As this is more relevant to IM than VM, recommendations relating to margin simulators and their functionality are set out in the Margin Group's report "Transparency and responsiveness of initial margin in centrally cleared markets – review and policy proposals".

3. Feedback on the discussion paper

The CPMI and IOSCO welcome comments on this paper from interested stakeholders. Comments should be sent to the CPMI Secretariat (cpmi@bis.org) and the IOSCO Secretariat (VMconsultation@iosco.org) by 14 May 2024. Comments will be published on the CPMI and IOSCO websites unless respondents expressly request otherwise.

The CPMI and IOSCO particularly welcome feedback on the following questions:

¹⁹ Part 22 of the CFTC's regulations, commonly referred to as "legal segregation with operational commingling".

Overarching questions

1. Do you agree that the eight effective practices identified in this report foster market participants' preparedness for above-average VM calls through the efficient collection and distribution of VM in centrally cleared markets?
2. Are there any other effective practices, mechanisms or changes that would streamline VM processes in centrally cleared markets which have not been covered in this report? If so, please describe such practices.

Effective practices

3. For each effective practice identified in this report:
 - a. Do you agree that it is an effective practice?
 - b. What are the pros and cons (including unintended consequences) of the effective practice?
 - c. Please discuss any drawbacks or hurdles to implementing the effective practice.
 - d. Are there better, more efficient, more cost-effective alternatives to the effective practices? If so, please describe them.

Annex A: Survey Questions

CCP survey

This excerpt of the CCP survey contains the questions on VM processes in centrally cleared markets (ie Section D of the survey).

Examine current cleared VM collection and distribution practices

18. How does the CCP calculate the VM obligation amount (eg does the calculation involve an approximation of prices)? [Free text]
19. Please provide the ITD schedules for VM calls for a day? [Free text]
20. What is the notice period given to pay the amounts once they are communicated to the CMs [Free text]
 - I. Does the notice period differ for ad hoc / unscheduled calls? [Yes/No]
 - i. If yes, please describe the notice period for ad hoc / unscheduled calls [Free text]
21. Does the CCP have internal practices and procedures related to ad hoc / unscheduled VM calls during the day? [Yes/No]

If yes:

 - I. Are there any time constraints for triggering ad hoc VM calls (eg difficulties in meeting or receiving payments late in the day)? [Yes/No]

If yes:

 - ii. Please describe [Free text]
 - II. Do ad hoc VM calls always apply to all members or can they be targeted to particular CMs (eg on the basis of a threshold for current exposure building up individually or on an aggregate basis)? [All members/one or a few members]
 - III. Does the CCP have pre-defined definitions triggering an ad hoc VM call? [Yes/No]

If yes:

 - iii. Please describe. If needed, please differentiate between calls addressed to all CMs and calls addressed to one or a few CMs only [Free text]
 - IV. Please list the three most frequent reasons that may trigger an ad hoc VM margin call (eg threshold on exposures based on mark-to-market, assessment of creditworthiness of a CM...). If needed, please differentiate between calls addressed to all CMs and calls addressed to one or a few CMs only.

Most frequent: [Free text]

Second most frequent: [Free text]

Third most frequent: [Free text]
 - V. Are the conditions and thresholds described above known to CMs [Yes/No]
22. For securities and for derivatives, please complete the following tables providing the following information on the number of calls. If the breakdown by clearing service is not possible, please complete only the first table (ie. the one for securities) and add a comment at the end of the survey.
 - I. *Please complete the table for securities.*

	2018	2019	2020	2021	2022
Number of days with at least one ad hoc ITD call					
Average number of scheduled ITD calls per day					
Average number of ad hoc ITD calls affecting all CMs per day					
Average number of ad hoc ITD calls affecting only one or a selected number of CMs per day					
Maximum number of ad hoc ITD calls affecting all CMs in a day					
Maximum number of ad hoc ITD calls affecting only one or a selected number of CMs in a day					

II. *Please complete the table for derivatives*

	2018	2019	2020	2021	2022
Number of days with at least one ad hoc ITD call					
Average number of scheduled ITD calls per day					
Average number of ad hoc ITD calls affecting all CMs per day					
Average number of ad hoc ITD calls affecting only one or a selected number of CMs per day					
Maximum number of ad hoc ITD calls affecting all CMs in a day					
Maximum number of ad hoc ITD calls affecting only one or a selected number of CMs in a day					

23. Are VM calls commingled with IM calls (ie current exposure management with potential future exposure management during the day)? [Yes/No]

If yes:

- I. What types of calls are commingled? *Select all that apply.*
 - ☐ In EOD/BOD calls
 - ☐ In routine / scheduled ITD calls
 - ☐ In ad hoc / unscheduled calls
- II. What is the rationale (eg the possibility to allow non-cash collateral for covering also current exposure)? [Free text]
- III. Which of the following processes are affected by such interrelation *Select all that apply*
 - ☐ Determination of the amounts
 - ☐ Communication
 - ☐ Collection
 - ☐ Other (please specify)
- IV. Please provide a brief explanation of the interaction within the selected processes. If appropriate, please split the answer by type of products. [Free text]

Pass-through of VM by CCPs

24. Does the CCP collect more VM than it pays out? [Yes/No]

- I. If yes indicate for which calls *Select all that apply.*
 - ☐ BOD calls

- ☐ EOD calls
- ☐ In scheduled ITD calls
- ☐ In ad hoc calls

II. If this affects ad hoc calls, are there different processes for payments affecting all CMs and payments for only selected CMs? [Yes/No]

25. Is there a delay within an intra-day payment between VM paid and VM received by the CCP, and if so, how long is the delay on average? *Please select from the list.* [0-30 min / >30 min - 2hrs / >2 - 8hrs / >8 - 24hrs / more than 24hrs]

26. Does the CCP pass through VM intraday? [Yes/No]

I. If no, what are the constraints or considerations that would stand in the way of passing through intra-day VM payments? (multiple choice is possible, please specify if applicable to (routine / scheduled and/or ad hoc / unscheduled)

	Routine / Scheduled ITD VM	Ad hoc / Unscheduled ITD VM	Please describe any constraints
Legal constraints	[Yes/No]	[Yes/No]	[Free text]
Regulatory constraints	[Yes/No]	[Yes/No]	[Free text]
Operational constraints	[Yes/No]	[Yes/No]	[Free text]
CCP liquidity resources	[Yes/No]	[Yes/No]	[Free text]
Currency mismatch	[Yes/No]	[Yes/No]	[Free text]
Collateral transformation requirements	[Yes/No]	[Yes/No]	[Free text]
Other	[Yes/No]	[Yes/No]	[Free text]

27. Does the CCP have plans or has the CCP considered plans to implement pass through VM? [Yes/No]

I. If yes, what changes would the CCP need to make to its operational processes, rules, or financial resources? Would there be any other impacts to consider (eg the loss of flexibility in terms of permitted coverage in terms of currency and non-cash collateral)? [Free text]

Cleared VM payment process between CMs and clients

28. Do CCPs net marked-to-market gains and losses between accounts at CM level? [Yes/No]

If yes:

- I. Are house and client accounts netted? [Yes/No]
- II. Is there netting between client accounts? [Yes/No]
- III. Is there any other netting? [Yes/No]
- IV. Please describe the netting process distinguishing between EOD/BOD, scheduled ITD and ad hoc margin calls. [Free text]

29. Please describe any legal, regulatory, operational, or other constraints limiting/preventing a CCP from netting across the accounts described above? [Free text]

Interactions with other CCP processes that may affect liquidity demands

30. Is there an impact of give up protocols for trades between clients, executing brokers and CMs on the calculation of VM? [Yes/No]

31. Is there an impact of allocation protocols for trades between clients, executing brokers and CMs on the calculation of VM? [Yes/No]
32. Are there misalignments of VM payment and collection timings with other payment flows? [Yes/No]
- I. If yes, which payment flows. *Please select all that apply and describe any options you have selected.*
- ☐ IM [Free text]
 - ☐ Cashflows linked to securities or derivatives (eg coupons, premia, settlement amounts upon exercise or expiry of an option [Free text]
 - ☐ Debt/equity issuance by the participant to the CCP [Free text]
 - ☐ Access to credit lines [Free text]
 - ☐ Other (*Please describe*) [Free text]
33. Are there options to improve the coordination amongst CCP obligations and other CM/client payment obligations? [Yes/No]
- I. If yes please describe [Free text]

Usage of excess collateral

34. Does the CCP allow for excess collateral deposited by CMs to be used to offset VM requirement? [Yes/No]
- If yes:
- I. For what type of calls? *Please select all that apply*
- ☐ For ad hoc calls
 - ☐ For EOD scheduled calls
 - ☐ For ITD scheduled calls
- II. Are there restriction on these offsets if the currency and/or collateral held type of the excess does not match the currency and/or collateral requirements of the VM call? [Yes/No]
35. Are there any impediments for the offsetting of VM payments against excess collateral? [Yes/No]
- I. If yes, for what type of calls? *Please select all that apply and briefly describe any impediments.*
- ☐ Operational [Free text]
 - ☐ Regulatory [Free text]
 - ☐ Legal impediments [Free text]
 - ☐ Other [Free text]

Possible use of alternative collateral to meet VM requirements

36. Is VM collected by the CCP in cash and paid only in the currency of the obligation? [Yes/No]
- I. If not, please explain under which circumstances (exceptional or ordinary) this happens, whose decision this is (CM or CCP), and what is the scope of alternative currencies or non-cash assets? Please briefly describe conditions and governance. [Free text]
37. Are there cases where a CCP could pay out non-cash collateral to meet VM requirements? [Yes/No]

- I. If yes, please explain under which circumstances (exceptional or ordinary) this happens, whose decision this is (CM or CCP), and what is the scope of alternative currencies or non-cash assets? [Free text]
38. Please describe any operational, regulatory, or legal impediments to the use of alternative currencies or non-cash assets to collect from CMs or to pay out VM to CMs . [Free text]

Differences and scope for alignment

39. To what realistic extent could VM processes across CCPs be aligned, in particular timing of payments, and how would this alleviate liquidity pressures? [Free text]
40. Are there other areas not mentioned in this questionnaire which could be amended in order to reduce or alleviate liquidity pressures resulting from VM calls? [Free text]

Regulatory Framework

41. Which aspects of the regulations applicable to the CCP affect the liquidity preparedness or the liquidity position of market participants, or prevent the CCP from implementing measures that would otherwise benefit the market participants' liquidity position? *Please complete the table.*

	Does this affect the liquidity preparedness of market participants?	If yes, please describe how.
Aspects of legal regime on VM for CCPs	[Yes/No]	[Free text]
Relevant regulations relative to the relationships between CMs and clients	[Yes/No]	[Free text]
Relevant legal aspects of rules around trade allocation and settlement issues	[Yes/No]	[Free text]
Other aspects (please describe)	[Yes/No]	[Free text]

42. Where the CCP operates multiple clearing services, if not already set out in your responses to the questions in Section D, please describe any differences relevant to VM processes across the different clearing services the CCP operates. Please provide any additional comments or clarifications you might have on the answers provided in Part D (Variation margin processes in centrally cleared markets) of the survey. [Free text]

CM Survey

A. General questions

1. Survey contact details
 - I. Contact name [Free text]. *Please include semicolon ";" in case of multiple answers.*
 - II. Contact email address [Free text]. *Please include semicolon ";" in case of multiple answers.*
2. Intermediary ultimate parent [Free text]
3. What is the jurisdiction of the intermediary ultimate parent? [Free text]
4. Who is the primary regulator of the intermediary ultimate parent? [Free text]

5. Please report the intermediary ultimate parent's total consolidated assets (**in USD equivalents**) as of 31 December 2022. *Please select from list.* [0-500 billions, 500 billions-1 trillion, > 1 trillion]
6. Please list the CCPs where the intermediary (or an affiliate) actively cleared derivatives, securities, and/or funding products during 2022 as a direct CM:
 - I. For house accounts [Free text]
 - II. For client accounts [Free text]
7. Please select the asset classes that the intermediary (or an affiliate) actively cleared derivatives, securities, and/or funding products during 2022 as a direct CM. *Please select all that apply.*
 - ☐ OTC IRS
 - ☐ OTC Credit
 - ☐ ETD
 - ☐ Commodities derivatives
 - ☐ Equity (cash)
 - ☐ Debt securities (cash)
 - ☐ Repo and securities lending
8. Please report the total aggregate cleared initial margin requirement (**in USD equivalents**) as of 31 December 2022 across all CCPs
 - I. For house accounts [Free text]
 - II. For client accounts [Free text]
9. Please report the total aggregate cleared initial margin requirement (**in USD equivalents**) for each of the following client types where the intermediary (or an affiliate) participated as a direct CM, as of December 31, 2022.

Client type:	Aggregate cleared initial margin requirement:
Banks	
Non-banks financials	
Non-financials	

- B. Centrally cleared VM payment processes between CMs and clients
10. Please describe in general the CMs' risk process to calculate, collect, and pay out VM margin requirements with its clients, including if known, how these practices differ from the CCPs' practices. [Free text]
11. Do CMs require clients with cleared positions to post additional cash resources at the CM to prepare for the possibility of unexpected/large VM calls? [Yes/No]

If yes:

 - I. What percentage of a client's collateral on average? [Integer <=100]
 - II. What percentage of a client's collateral at the maximum? [Integer <=100]
12. Do CMs collect **more** VM from clients than the obligation due by the CCP? [Yes/No]

If yes:

 - I. What percentage of a client's collateral on average? [Integer <=100]

- II. What percentage of a client's collateral at the maximum? [Integer <=100]
13. Do CMs collect **less** VM from some clients than the obligation due by the CCP? [Yes/No]
If yes:
- I. What percentage of a client's collateral on average? [Integer <=100]
- II. What percentage of a client's collateral at the maximum? [Integer <=100]
14. Do CMs transform any paid/posted client collateral to be able to meet the VM collateral requirements of the CCP? [Yes/No]
15. Do CMs rely on third parties such as calculation agents, payment banks or others, in the management of VM flows to and from their clients? [Yes/No]
- I. If yes, please describe the type of third parties and the reliance placed on them. [Free text]
16. Please indicate whether there is any timing difference between VM calls by CMs to clients and the CCPs' calls.

	Is there a timing difference?	If yes, what is the difference and why?
EOD scheduled calls	[Yes/No/NA]	[Free text]
BoD scheduled calls	[Yes/No/NA]	[Free text]
ITD scheduled calls	[Yes/No/NA]	[Free text]
Ad hoc calls	[Yes/No/NA]	[Free text]

17. What are CMs' processes for distributing VM to clients? Is this always performed at the same time as collecting VM from other clients? [Free text]

C. Liquidity impact of centrally cleared VM payment processes

18. Do ad hoc VM calls affect CMs from a liquidity perspective? [Yes/No]
[If yes]
- I. Please rank the factors that have a greater impact on a scale from **1 (largest impact)** to **6 (smallest impact)**.
- ☐ Timing
- ☐ Process
- ☐ Netting
- ☐ Currencies
- ☐ Collateral types
- ☐ Other (*please specify below*) [Free text]
- II. Please briefly describe the impact of the three most important factor(s). [Free text]
- III. What recommendations do you have to reduce these pressures? [Free text]
19. Do ad hoc and routine VM calls create operational issues such as payment delays or CMs having to liquidate assets rapidly? [Yes/No]
- I. If yes, please describe the impact? [Free text]

D. Interactions with other CCP processes that may affect liquidity demands

20. Is there an impact of give up protocols for trades between clients, executing brokers and CMs on the calculation of VM? [Yes/No]
21. Is there an impact of allocation protocols for trades between clients, executing brokers and CMs on the calculation of VM? [Yes/No]
22. Are there misalignments of VM payment and collection timings with other payment flows? [Yes/No]
- I. If yes, please indicate for which payment flows.

	Is there a misalignment?	If yes, please describe.
IM	[Yes/No]	[Free text]
Cashflows linked to securities or derivatives (eg coupons, premia, settlement amounts upon exercise or expiry of an option)	[Yes/No]	[Free text]
Debt/equity issuance by the participant to the CCP	[Yes/No]	[Free text]
Access to credit lines	[Yes/No]	[Free text]
Other (please specify below)	[Yes/No]	[Free text]

23. Are there options to improve the coordination amongst CCP obligations and other CM/client payment obligations? [Yes/No]
- I. If yes please describe [Free text]

E. Considerations on transparency and predictability

24. Do CMs consider CCPs' current practices of VM transparent? [Yes/No]
- I. If no, please describe any recommendations to increase transparency? [Free text]
25. Is it possible to predict the timing of ad hoc calls? *Please select from list.* [Not at all / Yes, but with poor accuracy / Yes, with high accuracy]
26. What recommendations do you have to increase the predictability of the timing of ad hoc calls? [Free text]
27. Is it possible to predict the magnitude of ad hoc calls? *Please select from list.* [Not at all / Yes, but with poor accuracy / Yes, with high accuracy]
28. What recommendations do you have to increase the predictability of the magnitude of ad hoc calls? [Free text]

F. Usage of excess collateral

29. Does the CM allow for excess client collateral to be used to offset VM obligations associated with its clients' activity? [Yes/No]
30. Are there any impediments for the offsetting by CM of clients' VM payments against excess collateral? [Yes/No]
- I. If yes, for what type of impediments? *Please select all that apply and briefly describe any impediments.*
- ☐ Operational [Free text]
 - ☐ Regulatory [Free text]

- ☐ Legal [Free text]
- ☐ Other (*please specify below*) [Free text]

G. Differences and scope for alignment

31. Please describe any material divergences in practices and in timing of VM payments across CCPs that may affect the ability of the CMs or clients using multiple CCPs to meet VM payments and manage liquidity needs. [Free text]
32. To what realistic extent could VM processes across CCPs be aligned, in particular timing of payments, and how would this alleviate liquidity pressures? [Free text]
33. Are there other areas not mentioned in this questionnaire which could be amended in order to reduce or alleviate liquidity pressures resulting from VM calls? [Free text]

H. Regulatory framework

34. Please indicate whether any regulatory aspects affect the liquidity preparedness of market participants.

	Does this affect the liquidity preparedness of market participants?	If yes, please describe the effect.
Aspects of legal regime on VM for CCPs	[Yes/No]	[Free text]
Relevant regulations relative to the relationships between CMs and clients	[Yes/No]	[Free text]
Relevant legal aspects of rules around trade allocation and settlement issues	[Yes/No]	[Free text]
Other aspects (please specify below)	[Yes/No]	[Free text]

35. Please indicate whether any changes in CCP policies would reduce the liquidity needs arising from VM requirements.

	Does this affect the liquidity preparedness of market participants?	If yes, please describe the impact and provide examples.
Changes to practices for CCP intraday routine / scheduled VM calls	[Yes/No]	[Free text]
Changes to practices for CCP intraday ad hoc / unscheduled VM calls	[Yes/No]	[Free text]
Changes to the CMs' practices for collections of VM from clients	[Yes/No]	[Free text]
Increased predictability and transparency for VM practices applied at both CCP and CM levels	[Yes/No]	[Free text]
Other (please specify below)	[Yes/No]	[Free text]

36. Please provide any additional comments or clarifications you might have on the answers provided in the survey.

Client survey

A. General questions

1. Survey contact details

- I. Contact name. *Please include semicolon ";" in case of multiple answers.* [Free text]
- II. Contact email address. *Please include semicolon ";" in case of multiple answers.* [Free text]

2. Client ultimate parent [Free text]

3. What is the jurisdiction of the client ultimate parent? [Free text]

4. Who is the primary regulator of the client ultimate parent? [Free text]

5. Please report the client ultimate parent's total consolidated assets in USD equivalents as of December 31, 2022. *Please select from list.* [0-500 billions, 500 billions-1 trillion, > 1 trillion]

6. Please list the CCPs where the client actively cleared derivatives, securities, and/or funding products during 2022: [Free text]

7. Please report the total aggregate cleared initial margin requirement (in USD equivalents) across all CCPs where the client participated as of December 31, 2022. [Free text]

B. Cleared VM payment process between CMs and clients

8. Do intermediaries/CMs' practices affect clients from a liquidity perspective? [Yes/No]

If yes:

- I. Do ad hoc VM calls affect clients from a liquidity perspective? [Yes/No]

If yes:

- i. Please rank the factors that have a greater impact on a scale from **1 (largest impact)** to **6 (smallest impact)**.

- ☐ Timing
- ☐ Process
- ☐ Netting
- ☐ Currencies
- ☐ Collateral types
- ☐ Other (*please specify below*) [Free text]

- ii. Please briefly describe the impact of the three most important factor(s). [Free text]

- iii. What recommendations do you have to reduce these pressures? [Free text]

9. Do ad hoc and routine VM calls create operational issues? [Yes/No]

- I. If yes, please describe the impact. [Free text]

C. Interactions with other CCP processes that may affect liquidity demands

10. Is there an impact of give up protocols for trades between clients, executing brokers and CMs on the calculation of VM? [Yes/No]

11. Is there an impact of allocation protocols for trades between clients, executing brokers and CMs on the calculation of VM? [Yes/No]

12. Are there misalignments of VM payment and collection timings with other payment flows? [Yes/No]

I. If yes, please indicate for which payment flows

	Is there a misalignment?	If yes, please describe
IM	[Yes/No]	[Free text]
Cashflows linked to securities or derivatives (eg coupons, premia, settlement amounts upon exercise or expiry of an option)	[Yes/No]	[Free text]
Debt/equity issuance by the participant to the CCP	[Yes/No]	[Free text]
Access to credit lines	[Yes/No]	[Free text]
Other (please specify below)	[Yes/No]	[Free text]

13. Are there options to improve the coordination amongst CCP obligations and other CM/client payment obligations? [Yes/No]

I. If yes, please describe [Free text]

D. Considerations on transparency and predictability

14. Do clients consider current CMs' practices to be transparent? [Yes/No]

I. If no, please describe any recommendations to increase transparency? [Free text]

15. Is it possible to predict the timing of ad hoc calls? *Please select from list.* [Not at all / Yes, but with poor accuracy / Yes, with high accuracy]
16. What recommendations do you have to increase the predictability of the timing of ad hoc calls? [Free text]
17. Is it possible to predict the magnitude of ad hoc calls? *Please select from list.* [Not at all / Yes, but with poor accuracy / Yes, with high accuracy]
18. What recommendations do you have to increase the predictability of the magnitude of ad hoc calls? [Free text]

E. Differences and scope for alignment

19. Please describe any material divergences in practices and in timing of VM payments across CCPs that may affect the ability of the CMs or clients using multiple CCPs to meet VM payments and manage liquidity needs. [Free text]
20. Are there other areas not mentioned in this questionnaire which could be amended in order to reduce or alleviate liquidity pressures resulting from VM calls? [Free text]

F. Regulatory framework

21. Please indicate whether any regulatory aspects affect the liquidity preparedness of market participants.

	Does this affect the liquidity preparedness of market participants?	If yes, please describe the effect.)
Aspects of legal regime on VM for CCPs	[Yes/No]	[Free text]

Relevant regulations relative to the relationships between CMs and clients	[Yes/No]	[Free text]
Relevant legal aspects of rules around trade allocation and settlement issues	[Yes/No]	[Free text]
Other aspects (please specify below)	[Yes/No]	[Free text]

22. Please indicate whether any changes in CCP policies, or in policies relative to the relationship between client and CM, would reduce the liquidity needs arising from VM requirements.

	Does this affect the liquidity preparedness of market participants?	If yes, please describe the impact and provide examples.
Changes to practices for CCP intraday routine / scheduled VM calls	[Yes/No]	[Free text]
Changes to practices for CCP intraday ad hoc / unscheduled VM calls	[Yes/No]	[Free text]
Changes to the CMs' practices for collections of VM from clients	[Yes/No]	[Free text]
Increased predictability and transparency for VM practices applied at both CCP and CM levels.	[Yes/No]	[Free text]
Other (please specify below)	[Yes/No]	[Free text]

23. Please provide any additional comments or clarifications you might have on the answers provided in the survey.