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Review of margining practices – Thematic summary of feedback

In October 2021, the Basel Committee on Banking Supervision (BCBS), the Committee on Payments and Market Infrastructures (CPMI) and the International Organization of Securities Commissions (IOSCO) published their *Review of margining practices*.¹ This joint consultative report looked at margin calls in March and April 2020, margin practice transparency, predictability and volatility across various jurisdictions and markets, as well as market participants' liquidity management preparedness. It finds that variation margin (VM) calls in both centrally and non-centrally cleared markets in March were large, and significantly higher than in February 2020. Initial margin (IM) requirements for centrally cleared markets increased significantly, and varied substantially across, and within, asset classes. IM requirements on non-centrally cleared derivatives remained relatively stable during the stress period.

On the back of that data-driven analysis, the consultative report identifies six potential areas for further policy work. This note summarises the written feedback received on each of those areas (plus other key remarks). In general, although not in every instance, respondents were relatively hesitant in advancing proposals that would result in new or additional requirements in their own sector, while recommending further work focus on the proposals affecting other sectors. The intention here is to publish a version of this summary (with the names of respondents redacted) alongside the final version of the report.

Written feedback was received from 33 entities or groups: 10 were from CCPs or industry associations representing CCPs; seven were from clearing members or groups representing clearing members; 10 were from clients or industry associations representing clients; and the remaining six were from a variety of entities, including academic institutions, consultancies, authorities and individuals (see Annex A for list of respondents).²

Overall, the consultation respondents viewed the margining practices consultative report as accurate, providing as it did a clear view of market events and margin dynamics during the Covid-19 turmoil. Respondents agreed that the relevant reforms enacted following the Great Financial Crisis (GFC) enabled market participants to continue to transact in risk transfer markets during the Covid-19 turmoil. In particular, counterparty credit risk was mitigated by the greater use of CCPs and the implementation of non-centrally cleared margin rules. Most respondents noted that the report properly identified the main drivers for the increase in margin requirements and accurately assessed the preparedness of market participants to manage their liquidity requirements. In general, the responses also suggested that the report appropriately described the level of transparency, responsiveness and performance of CCP margin models as well as non-centrally cleared margin models and practices. However, some concerns were raised on data availability and specific parts of the analysis, and some additional topics were proposed for further work.

In addition to the written feedback, BCBS, CPMI and IOSCO held a series of virtual stakeholder outreach sessions in November 2021. The feedback from those sessions is largely aligned with the written feedback. A summary of the workshops is included as Annex B.

¹ Available on the BIS and IOSCO websites, see www.bis.org/bcbs/publ/d526.htm and <https://www.iosco.org/library/pubdocs/pdf/IOSCOPD686.pdf>, respectively.

² Where respondents did not expressly request otherwise the comments are available on the BIS (www.bis.org/bcbs/publ/comments/d526/overview.htm) and IOSCO (www.iosco.org/publications/?subsection=public_comment_letters) websites.

Transparency

Overall, the responses on transparency varied across sectors. CCPs considered that they already provide sufficient transparency to market participants, and called for increased transparency from market participants themselves. In contrast, clearing members and clients considered that the current levels of transparency provided by CCPs are insufficient, and do not allow for adequate liquidity preparedness. They made a number of suggestions on tools and metrics, and on the information about centrally cleared IM models that they would like CCPs to disclose.

Respondents from CCPs and CCP-sponsored organisations unanimously consider that they already provide the markets with significant transparency on their practices. They referred to CCPs' public quantitative disclosures, due diligence questionnaires, bilateral interactions with clearing members, established risk governance structures, backtesting disclosures, credit stress testing etc. One association (EACH) noted that European CCPs already provide sophisticated margin simulators. Another (LSEG) noted that forward-looking disclosure would most likely fail to predict the future accurately, limiting the benefits to users.

Some CCP respondents called for further standardised transparency from market participants, to support CCPs and market participants' oversight of risk management practices and exposures across the system. CCPs (CCP12, CME Group, DBG, EACH, LSEG, NCC, WFE) pointed to the lack of transparency in other areas of the financial system – in particular with regard to non-centrally cleared markets; market participants' liquidity preparedness; and the clearing member-client relationship. They further noted that clearing members might have a role to play in facilitating transparency to their clients. One respondent (WFE) suggested that participants should also be subject to public quantitative disclosures to improve transparency in the markets (see Annex C for details).

When it came to acknowledging the benefits of increased transparency or promoting improved understanding/awareness of existing information, a number of CCP respondents expressed some support. One CCP respondent (DBG) noted that they have responded to market participants' suggestions for additional metrics on anti-procyclicality (APC) and have started publishing additional data, to allow for a better interpretation of margin coverage and the procyclicality properties of their margin models. This respondent also acknowledged that the public quantitative disclosures could be published more frequently, and that additional procyclicality metrics could be disclosed by CCPs to improve predictability for market participants. Another respondent (Euronext Clearing) noted that a greater level of public transparency on core and add-on components of IM models should be encouraged, recognising the importance of having as much transparency as possible around margin practices, but cautioned that full public transparency might have undesired effects, for example by encouraging the opening of new positions just after the intraday margin call occurs. Another respondent (LSEG) suggested that more transparency around the workings of APC tools could be considered. Other CCP respondents suggested that raising participants' awareness of how CCP margin models work (eg how the model works and responds) could be useful (DBG, EACH). One of these suggested that, with current levels of transparency, increased awareness could prove more fruitful than making more data available.

On the benefits of improved CCP margin public transparency, client respondents generally noted that improved CCP margin transparency would allow for enhanced preparedness. One such respondent stated that limited CCP margin transparency resulted in unexpected margin calls, making it difficult to prepare (BlackRock). Another (EFET) noted that more detailed public disclosures would (i) improve participants' understanding of risks and margin call predictability; (ii) enhance the quality of clearing member participation in risk model designs and consultations; (iii) enhance the liquidity risk management practices of clearing members and clients including in their stress testing; and (iv) foster communication between users and the CCP through distinct channels. Other client respondents pointed to the competition

benefits of improved public CCP margin transparency – transparency could improve competition and reduce informational costs for market participants, leaving them better able to compare CCP offerings.

In terms of where to focus efforts on improving CCP margin public transparency, the priority for some clients was to enhance the public transparency of CCP IM models, with improved data on margin model disclosures, and improved risk management processes for CCPs to better consider feedback from market participants – especially in a stress episode (AFG, EFAMA). One respondent (ICI) further suggested that CCPs should publicly disclose how a CCP’s IM model typically operates, specifying when add-ons would apply; which APC tools the CCP uses, and when these would apply; what discretion the CCP has in changing its margin levels, including with regard to portfolio offsets, and increases in collateral haircuts; what notice periods should apply before any changes to these practices take effect etc. Another respondent (EFAMA) suggested that CCP public disclosure requirements should encompass explanatory text to market participants regarding CCP risk methodologies, backtesting, stress testing, and the allocation of losses to clearing members and end users.

On governance and accountability, some market participants and industry representatives recommended expanding model governance arrangements to include clearing members and/or market participants. Some of the client respondents (EFET, SIFMA AMG) suggested that clients could be represented on CCPs’ risk committees. One of these respondents (SIFMA AMG) suggested that CCP risk committees should be supplemented by mandating the solicitation of independent intermediary and client input. One respondent (BlackRock) underlined the lack of specific formal mechanisms in place to hold CCPs accountable for the timeliness and accuracy of their public disclosures. Regarding how to improve the quality of public disclosures, some respondents (AFG, EFAMA, ICI) suggested subjecting CCP public disclosures to audit reviews by third parties to improve the quality and consistency of disclosures.

On client transparency, one client respondent (PGGM) cautioned that information regarding their portfolios would be too sensitive to disclose publicly or to CCPs.

A number of clearing member respondents pointed to gaps in current information provided by CCPs (FIA, IIF-ISDA, JPM et al,³ SIFMA AMG, TD Bank). While acknowledging that some – but not all – CCPs already share some tools, simulators and methods of calculation, they argued that more public transparency is needed. One association (FIA) pointed to important gaps around the parameters CCPs use to calculate IM, margin add-ons, and ad hoc calls – noting that stressed margin add-ons to be particularly problematic. One association (FIA) also noted that this information should be publicly published more frequently than quarterly.

Several clearing member respondents suggested that CCPs should disclose a risk appetite for procyclicality and enhance disclosures around their APC tools (FIA, IIF-ISDA). In addition to providing information on the extent and usage of APC tools in their IM, this could include specific adjustments they may make to address procyclicality, and an analysis of how margins would react to extreme volatility (FIA, IIF-ISDA, JPM et al). Clearing member associations (FIA, IIF-ISDA) provided some suggestions as to the details that CCPs should include in their disclosures on the extent of usage of APC tools (see Annex C for details). In addition, they argued that participants should be able to provide input into the CCP’s risk appetite for procyclicality. Some clearing members (JPM et al) highlighted the importance of disclosures on the usage of APC tools in CCP margin models in helping participants to anticipate how IM may react during periods of market stress.

Several clearing member respondents called for more information on approaches to backtesting and backtesting results (FIA, IIF-ISDA, JPM et al). This should include information related to contract level

³ JPM et al refer to the joint industry response provided by ABN AMRO Clearing Bank, Barclays, BlackRock, Citigroup, Deutsche Bank, Goldman Sachs, JPMorgan Chase, Société Générale, T Rowe Price, UBS and the Vanguard Group.

margin breaches, across an extended period of time, as this information can highlight model weaknesses or gaps that may otherwise be masked by portfolio level backtesting.

Several clearing member respondents called for improved documentation from CCPs on their IM models (IIF-ISDA, FIA, JPM). One (CA) suggested that regulators could require CCPs to produce standardised IM model documentation in order to facilitate understanding and comparison between models. Another (JPM et al) noted the need for some comprehensive documentation on risk methodologies, such as information and explanatory notes on CCPs' IM methodologies, including stress-testing frameworks which directly impact IM stress add-ons that may be levied on participants, noting that this information would enable market participants to conduct in-depth "what if" analysis to understand their counterparty credit and membership liability risks and to manage their liquidity and funding risk accordingly. Another respondent (FIA) noted that current "what if" tools do not generally allow predictive estimates based on current prices or future scenarios – greater availability of these tools would have a significant impact on users' ability to anticipate demands for liquidity.

Many non-CCP respondents called for more information on margin models. In terms of forward-looking disclosures, one non-CCP respondent (IIF-ISDA) suggested that CCPs could share hypothetical margin increases based on a range of volatility assumptions over one-day, one-week and one-month time horizons at the portfolio, flagship product and asset class levels. Similarly, another respondent (FIA) called for more granular information about the impact of stress scenarios (eg, anonymised aggregated reporting on the ratios of stress test losses to IM). Non-CCP respondents also called for more information on the calibration of CCP IM add-ons, including how such add-ons interact with intraday margin frameworks, so that market participants can better anticipate potential margin calls. Acknowledging that some CCPs may be reluctant to share additional information publicly, respondents (FIA, IIF-ISDA) suggest providing it to clearing members via secure portals.

Two respondents, GLEIF and LSE Law (Professor Murphy) note the importance of transparency in supporting participant preparedness and smooth market functioning. LSE Law points to the inadequacy of disclosures by CCPs given the burden created by mandatory clearing, especially for end users and the real economy, as well as the concentration of clearing in a small number of global CCPs. These factors point to a strong reason for mandating additional disclosures of margin procyclicality to improve transparency.

Data gaps

Overall, CCPs voice support for further work/effort on identifying and reducing data gaps, with a focus on non-centrally cleared markets. Several CCPs (CCP12, CME, DBG, EACH, LCH, NCC, WFE) stress the need for improved transparency (ie the reduction of data gaps) for non-centrally cleared markets and they voice concerns on the adequacy of the ISDA Standard IM Model (SIMM) model and its parameters (echoing the points made on transparency, above). More concretely, certain CCPs also voice the need to improve the understanding of IM/VM/collateral compositions and flows, especially for non-centrally cleared markets. CCPs also encourage increased data granularity and improved data reporting by both banks and non-banks. Relatedly, they recommend that the actions of intermediaries as well as the impact of these practices on the financial system should also be further investigated. Finally, a range of CCPs support further work on improving and increasing the transparency/availability of liquidity-related data and metrics. Some respondents noted that usability of TR data should be improved (EACH).

On the other hand, some clients and clearing members (FIA, AFG, EFAMA, Insight Investment) deem their current reporting volumes to be sufficient and already challenging, stating that nothing further in this respect should be done and that the reporting for the NBF sector should remain simple, not become unnecessarily complex.

Nevertheless some client and clearing member respondents did identify potential improvements in reporting on non-centrally cleared transactions. One industry association (IIF-ISDA) noted the general lack of granularity in the data reported to regulators prevents authorities and market participants from achieving a proper analysis/quantification of liquidity shock transmissions. Furthermore, it supported improved, but proportionate, reporting for NBFIs and consistency across jurisdictions. Several respondents highlighted the need to eliminate impediments to the aggregation of data reported to trade repositories (eg IIF-ISDA). Ideas for achieving this included improved regulatory cooperation to address differences in regulatory requirements and consistent implementation of the CPMI-IOSCO guidance on harmonisation of over-the-counter (OTC) derivatives reporting. Another respondent (Insight Investment) proposed that further securities financing transaction market data are needed to improve the transparency and understanding of the liquidity patterns in the repo and secured lending markets.

Participants' preparedness

Overall, CCPs, clearing members and clients had differing views on participants' preparedness. CCPs and CCP-sponsored organisations/associations viewed the existing tools and disclosures as sufficient to support participants' preparedness, while clients and clearing members argued that improved transparency (see above) would facilitate better preparedness. Some clients, in particular, suggest that the focus should be on improving CCP transparency, rather than on their own liquidity preparedness. Some clients also viewed the behaviour of securities financing transaction markets as an impediment to their ability to access liquidity in a timely manner under stress; a number of respondents recognised that central bank intervention was critical in restoring liquidity in these markets.

Some of the CCPs and CCP-sponsored organisations (EACH, CCP12, CME, OCC, and WFE) were of the view that, overall, participants had no major issues in meeting centrally cleared margin requirements and therefore had adequate liquidity resources. As evidence of the preparedness of market participants, these respondents pointed to overcollateralisation in the form of excess margin, posting of cash collateral, the fact that VM exceeded IM flows during the stress period and their own observations during March 2020. Along the same lines, a few of the CCPs (eg OCC) argued that the Principles for financial market infrastructures (PFMI) disclosure framework combined with CCPs' own efforts to increase transparency have improved participants' preparedness, and especially clearing members' understanding of margin models and their capability to forecast liquidity needs during market stresses. Some of the CCP responses (CCP12 and WFE) pointed to the lack of transparency of intermediaries (eg regarding the size of discretionary IM calls) as affecting client preparedness. In contrast, another (EACH) argued that banks' stress tests results and how banks respond to these stresses as clearing members can enhance participants' preparedness.

A number of CCPs and CCP-sponsored organisations agreed with the view that clients and intermediaries did not experience severe issues in meeting liquidity needs, but still identified potential improvements to support participants' preparedness. These respondents (DBG, LSEG, NCC, OCC) are generally supportive of further work to enhance market participants' understanding of CCP margin models and margining practices. However, they differ in terms of which tools can best facilitate participants' preparedness. For example, one (DBG) is supportive of CCPs providing margin estimators for hypothetical portfolios, but sceptical of the usefulness and feasibility of simulation tools with "what if" type hypothetical scenarios in promoting preparedness. Another (LSEG) expressed the view that direct participants, intermediaries and clients should have their own adequate liquidity stress-testing capability to facilitate their preparedness for changes in VM sizes. A third CCP was concerned about the usefulness of CCP margin tools and simulators in practice; it argued that the provision of more sophisticated market movement-based tools, as opposed to only portfolio-based tools, will have minimal benefit as IM models are generally

path-dependent and typically require multiple inputs (eg volatility and individual exposure shocks etc), which makes implementation by participants challenging and costly.

Clients' views on participants' preparedness ranged between "no need for improvement" to calling for more transparency and predictability in CCP IM models to facilitate participants' preparedness. One industry association (SIFMA AMG) viewed the focus on client liquidity at best premature and possibly unnecessary as any such participant liquidity challenges were the result of the CCP margin practices during March 2020. A client (BlackRock) argued that asking clients to increase buffers due to the lack of CCP IM predictability is not the right approach from a risk management perspective, and instead suggests (i) publication of expected stressed IM multiplier by CCPs; and (ii) expanding the acceptable collateral as possible avenues to consider in enhancing liquidity preparedness. This latter suggestion was supported by another client (Insight Investment). Another client (AFG) argued that the information in the report on the increase in clients' liquidity needs cannot be generalised because it is based on too small a sample. This organisation also indicated that liquidity issues were not universal across all markets, with the fixed income segment the most significantly affected. One respondent (AFG) suggested that buy-side firms are underrepresented in the report, and therefore the heterogeneity of clients' experiences is not sufficiently captured. In particular, these responses suggest that for some client sectors margin calls were not an issue, while other investors needed to redeem money market fund (MMF) shares to raise cash. Two client-sponsored organisations/associations (AFG and EFAMA) noted that members were able to deploy resources such as stocks or securities to respond to increased margin calls. Given the existing measures in effect in Europe (such as "guidelines on liquidity stress testing in UCITs and AIFMD"), a client-sponsored organisation (EFAMA) argues there is no need to enhance the liquidity preparedness of NBFIs.

Some of the clients (EFET and PGGM) stressed the importance of CCPs assisting the clients of clearing members with running scenario analysis, providing near-real time centrally cleared IM estimates, and tools to run "what if" scenarios. One client (EFET) also suggested standardised application interfaces for margin calculators to cut the implementation costs especially for small and medium-sized clients. A few clients fully supported the work on enhancing liquidity preparedness and disclosures. In contrast to clients who favour enhancing disclosures and tools to facilitate participants' preparedness, one client (Insight Investment), expressed the view that further liquidity disclosures or metrics from clients will not facilitate preparedness of the NBFI sector and suggests instead that future work should focus on (i) increasing the liquidity of underlying securities financing transaction markets; (ii) recognising high-quality government bonds posted as VM in the leverage ratio rules; and (iii) increasing the list of CCP eligible collateral as alternative ways of facilitating liquidity preparedness.

A number of non-CCP respondents (ISDA, EFAMA, Insight Investment, SIFMA AMG) expressed concerns about the resilience of securities financing transaction markets during stress periods, given that their liquidity management strategies rely on securities financing transaction markets to raise liquidity in a stress episode. They argued that the problem lies with securities financing transaction market resilience rather than their own liquidity risk management strategies. They noted that banks retreated from securities financing transaction lending just as demand for cash increased. Some responses (PGGM, Insight Investment) therefore suggested more work may be needed to ensure greater reliability of collateral transformation services such as the repo markets during periods of stress. In relation to this, some respondents pointed to the effect of bank capital/leverage requirements on securities financing transaction market resilience, and suggested reviewing incentives created by bank capital frameworks that may disincentivise banks from intermediating repo markets. Other responses recommended expanding access of NBFIs to repo markets directly or through sponsored repo. One respondent (SIFMA AMG) noted that spikes in centrally cleared IM seem to have exacerbated broader market liquidity issues – such that central bank intervention was necessary to support liquidity. Some respondents (IIF-ISDA), suggested that central banks should provide a backstop to securities financing transaction markets.

Clearing members generally viewed participants' preparedness an important area of focus with different views on how to enhance the preparedness. Like a number of clients, some clearing members

(FIA and JPM et al) pointed to the importance of increasing transparency and supported the view that CCPs should make information directly available to clients. One (FIA) argued that, due to legal disclosure constraints on the clearing members, the burden of information-sharing should be on CCPs rather than clearing members. Another (JPM et al) suggested the following five changes to enhance participants preparedness: (i) timely disclosures in order to adequately inform participants on market resilience during stressed market conditions; (ii) greater standardisation of disclosures; (iii) instituting audit requirements to ensure disclosures are accurate, clear, and consistent; (iv) requiring that summaries of audit findings and similar independent validations of CCPs' systems and models for generating IM requirements be made available to market participants; and (v) establishing a mechanism to facilitate the ability for market participants to credibly challenge CCP margin frameworks through enhanced risk governance including requiring a formal process to obtain, consider and address market participants' feedback on any changes that materially affect the risk profile of the CCP, particularly as it relates to risk methodologies and financial safeguards.

To reduce liquidity crunches during periods of stress, a number of clearing organisations and market participants recommended possible expansions to allow non-cash collateral and loosen limits on the mix of collateral types accepted by CCPs. Several respondents (eg BlackRock and ISDA) recommended expanding margin-eligible collateral to include money market funds, with appropriate haircuts and conditions, for both centrally and non-centrally cleared IM. Other responses have more regional recommendations, such as the use of standing letters of credit in Europe (as in the United States), and expanding the list of eligible sovereign issuers.

Responses also made a series of other suggestions to support participants' preparedness. One (IIF-ISDA) also suggests the following areas of focus in support of participants' preparedness: (i) central banks providing a backstop to the securities financing transaction market; (ii) reviewing bank capital/leverage requirements and the effect on securities financing transaction markets under stress; (iii) improvements in payment systems including operating hours; and (iv) enhancing APC tools. A few respondents (GLEIF) generally support developing appropriate liquidity metrics and disclosures and note the need for additional consideration to be given to the impact on market participants in jurisdictions with limited access to global liquidity in hard currencies. One of these (GLEIF) also recommended that all relevant authorities mandate the use of LEIs in standardised disclosure requirements and information-sharing templates; it noted that in addition to supporting participants' preparedness this can also help reduce data gaps in regulatory reporting.

Other respondents (LSE Law, MEW and SEC Thailand) all expressed support for proposals on preparedness. One (LSE Law) emphasised the importance of transparency and the need for CCPs to provide all centrally cleared accounts in each service with standard liquidity disclosures each day. It also highlighted the importance and usefulness of "what if" tools and additional disclosures of margin procyclicality by CCPs in facilitating participant preparedness. Additionally, it noted that disclosure may not be sufficient given the magnitude of the burden created by mandatory clearing on real economy risk transfer and hence underscored the case for regulators to further examine and, if necessary, further limit the risk created by CCP margin requirements for market participants. On the other hand, another respondent (MEW) pointed to the additional safety architecture needed to bridge the gap in time between instant risks and slower acting participants and promotes automatic stabilisers as a countercyclical buffer.

VM collection – Centrally and non-centrally cleared

Responses from CCPs (CCP12, CME, Euronext Clearing, WFE, LSEG) generally stress the view that CCPs need to retain the ability to design processes and practices which reflect the products they clear and the jurisdictions they operate in, as well as their risk appetites, and that a "one size fits all" solution would not be appropriate. One response stressed it is important that VM practice strikes a balance between risk

coverage and the timeliness of passing payments back to clearing members. CCPs in certain jurisdictions (EACH, LSEG) noted legal, operational and cost implications associated with moving towards same-day VM pass-through, and that CCPs should not be obliged to perform VM pass-through.

On the other hand, responses from market participants (BCPE, SIFMA AMG) noted the difficulties arising from delays between paying and receiving VM, including credit, liquidity and settlement strains for clearing members and clients. These responses suggested that further work should aim to increase, and coordinate, the speed at which margin is collected and accounted for to avoid timing mismatches between intermediaries, or mismatches that could force other market participants to retain additional and unnecessary liquidity buffers. Two responses (ICI, AFG) suggested further work should consider whether certain margin collection practices should be standardised or aligned across CCPs.

A number of responses suggested that intraday calls can put the liquidity of clearing members under stress as it is sometimes difficult to pass on large intraday margin calls to clients at short notice (given operational and liquidity constraints on the client side). Relatedly, some client responses noted that they would not be in favour of moving to intraday processes for centrally cleared trades due to such operational concerns (EFAMA, AFG), and that clients are often non-bank financial institutions limited in access to their own cash or are non-financial institutions (EFT). Ideas for improvements (FIA) included scheduling intraday calls at set times – for example at the same time of day, as early as possible and with limits on how late – and ensuring they are well defined (eg separating IM and intraday trading loss components, and distinguishing between house and client positions). Other suggestions (FIA) included netting calls (eg IM and VM) where possible and using excess collateral (including non-cash) to cover intraday margins. Other responses also suggest further work on VM settlement frequency given the asymmetrical nature of intraday calls (DBG). A number of responses suggest limiting the use of ad hoc calls to extreme situations with clear limits and disclosed thresholds/triggers on their use (FIA, ICI). One response (ICI) suggests further work should review whether regulatory constraints incentivise the use of ad hoc calls over margin calls under periods of stress. Responses (DBG, IIF-ISDA) also more generally suggested increased transparency and clear rules around intraday management practices, including providing clearing members with sufficient warning of ad hoc calls. One response (ICI) suggests further work should review whether regulatory constraints incentivise the use of ad hoc calls over margin calls under periods of stress. Some responses (DBG, IIF-ISDA) also more generally suggested increased transparency and clear rules around intraday management practices, including providing clearing members with sufficient warning of ad hoc calls.

A number of responses (EFAMA, Insight Investment) proposed that further work considers expanding allowable VM collateral beyond cash (for both centrally and non-centrally cleared VM). One (IIF-ISDA) suggested that CCPs should consider the trade-off between requiring VM in the currency of the transaction in order to pay out VM intraday, or choosing not to pay out intraday VM in order to allow other cash or securities collateral to be posted as intraday margin.

Responses also include other suggestions to address liquidity frictions related to centrally cleared margin calls, included expanding access to CCP payment arrangements for large clients (IIF-ISDA), and considering ways to make collateral arrangements more efficient (eg exchanging IM for VM or making better use of technology).

Other than expanding eligible collateral, the main recommendations to improve VM collection in the non-centrally cleared space focused on streamlining and/automating VM calls (AFG, IIF-ISDA, PGGM, TD Bank). The only other recommendation was for more granular data to better facilitate comparability (CCP12).

IM responsiveness in centrally cleared markets

Regarding the design and performance of CCP IM models (including APC tools), CCP responses generally indicated that they (CCP12, DBG, LSEG, OCC) consider that their IM models performed as designed, including effective APC measures, and that no significant adjustments to current practices are required. In contrast, clearing members and clients (BlackRock, FIA, IIF-ISDA, JPM, SIFMA AMG, LSE) are generally in favour of conducting further work on centrally cleared IM models and the effectiveness of APC tools, including exploring further guidance on and reviews of IM models, measuring procyclicality and APC tool effectiveness, and developing procyclicality targets. There was also some support among a few CCPs for some of these initiatives.

Some respondents (Insight Investment) suggested that centrally cleared markets need additional liquidity risk mitigation standards, as compared with current practices. CCP respondents (CCP12, DBD, LSEG, OCC) highlighted that their centrally cleared IM models have measures that result in margin conservativeness during low-volatility periods and that APC measures worked as they were designed to during the peak of the crisis. In confirmation of this, they noted that centrally cleared VM calls, which reflect market volatility, far exceeded changes in IM levels which, compared with volatility changes, were relatively modest. While some respondents (EACH, EFET, FIA, JPM) agreed that the majority of the centrally cleared IM increase was driven by the response of base margin models to market volatility, some CCPs (EACH, LCH) believed that position changes and price level changes also had a large impact on IM changes and their effect was underemphasised in the report. Almost all of the responses from CCPs and CCP associations noted that they did not support further international work in this area (CCP12, CME, LSEG, OCC, WFE).

A number of CCP (or CCP association) responses (CCP12, CME, DBG, LSEG, WFE) noted that IM models performed as expected, and cited the consultative report finding that increases in IM were lower than both increases in volatility (on a relative basis) and VM calls as evidence that CCP IM models were appropriately APC. One CCP response (LSEG) noted that the report did not adequately emphasise the impact of centrally cleared trade volumes on centrally cleared IM increases, noting this was the primary driver of their IM increases. Further, a small number of CCP-related entities suggested that the report demonstrated that centrally cleared IM calls did not generate the largest liquidity demands on clearing members and intermediaries, with flows larger for centrally and non-centrally cleared VM (CME, WFE, LSEG). One CCP association (CCP12) highlighted many mechanisms (such as margin floors, buffers, the use of stressed period data, and lookback periods) that CCPs already incorporate in their IM methodologies. These mechanisms both mitigate excessively rapid changes in IM levels in times of stress and ensure that centrally cleared IM is sufficiently risk-sensitive. Two CCPs (LSEG, CME) noted specific APC measures that they put in place to ensure appropriately conservative levels of centrally cleared IM going into the Covid-19 period and noted the lack of model changes either during or after the period. Another CCP noted that they consider that CCPs' margin standards meet the PFMI's stated policy objectives.

A number of CCP-related responses (CCP12, EACH, OCC) noted the difficulty in balancing APC measures and responsiveness with margin efficiency and CCP safety/prudence. Other CCP responses (OCC) noted that the degree and nature of responsiveness of centrally cleared margin models should differ across CCPs, due to differences in products, participants and markets. In this light, a number of responses suggested that further prescriptions on, or standardisation of, CCP IM modelling could increase the cost of central clearing (WFE) and/or lead to models being less risk-based and reduce the benefits of model diversity and so amplify procyclicality (LSEG). Two CCP responses also suggested this could curtail their ability to manage emerging risks (LSEG). One CCP response (OCC) also cautioned against comparing CCP IM models with non-centrally cleared markets, given issues with the quality and availability of non-centrally cleared data and the static nature of non-centrally cleared models. Another (LSEG) noted it is important that CCPs do not reduce centrally cleared IM requirements too quickly, to ensure protection during prolonged stressed conditions.

Some CCP responses noted regional differences between CCPs. One CCP association (EACH) suggested that centrally cleared margins in their jurisdiction were less procyclical, while one CCP (LSEG) suggested any future international work should focus on jurisdictions where the use of APC tools is not prescribed in the regulatory framework, such as through the EMIR regulation in the United Kingdom and the European Union. Another CCP response (CME) noted regulatory requirements in their jurisdiction meant that they had to collect IM on a gross basis from clients, while CCPs in other jurisdictions can do so on a net basis, and suggested this generally results in IM requirements that are twice as large as those under a customer net margin regime.

A large number of responses (from clearing members/intermediaries, clients, a small number of CCPs, and other responses) noted that they support further international work in this area (DBG, Euronext Clearing, NCC, EEFT, EFAMA, PGGM, BlackRock, ICI, FIA, TD Bank, IIF-ISDA, JPM et al, SIFMA AMG, SMV Panama, LSE Law). A number of these responses suggested that it was unclear whether CCPs' APC tools were effective (FIA, EEFT), noting that increases in IM were often large and rapid (ICI, JPM et al, SIFMA AMG), indicating that centrally cleared IM was too low going into the episode; one (BlackRock) suggested further work could be done to enhance centrally cleared margin modelling to mitigate procyclical effects. A number of responses (EFAMA, FIA, SIFMA AMG) noted that some CCPs have higher levels of margin procyclicality than others, despite in some cases operating under the same region and rules, and/or that margin requirements should be more consistent when set by different CCPs for similar products, markets and risk. With this, at least one commenter (FIA) highlighted the value of avoiding overconvergence in models.

A number of responses – from clearing members/intermediaries and clients, but also a small number of CCPs/CCP associations – called for further work on measuring margin procyclicality, and on developing agreed procyclicality metrics and/or criteria for APC effectiveness (DBG, EACH, NCC, EEFT, IIF-ISDA, SIFMA AMG, JPM et al). One response also suggested that the wide range of procyclicality levels disclosed in the report highlights the need for enhanced governance (JPM et al). Building on this, a number of these responses suggested CCPs should establish thresholds for acceptable levels of margin procyclicality (SIFMA AMG) or that future international work develop a globally consistent “outcomes-based approach” (DBG, SIFMA AMG). Under such an “outcomes-based approach”, responses suggested that the market and regulators should develop an agreed target level of margin procyclicality that balances costs with stability (EEFT, IIF-ISDA) (and that this, or other measures of procyclicality, should differ by asset class as appropriate (IIF-ISDA, SIFMA AMG, ICI)); that CCPs should disclose certain margin procyclicality KPIs (such as rate of change over a defined period for a specific scenario) (EACH); and that these targets for procyclicality should be annually reviewed (DBG). One response (LSE Law) suggested such an approach should focus on the outcomes of CCP margin calls, not the margin model design, while another (IIF-ISDA) argued for allowing diversity in modelling approaches; it argued for assessing margin procyclicality across a period of time beyond a one-day period, with five days or one month as two examples.

A number of responses (BlackRock, FIA, JPM et al, SIFMA AMG) noted differences in exchange-traded derivatives (ETD) and OTC model performance, suggesting that they were partially driven by margin methodology (in particular a five-day margin period of risk (MPOR) for OTC, and one to two days MPOR for ETD). One response (BlackRock) suggests that future work should pay attention to these divergences, and guidelines on margin model design should aim for further consistency between ETD and OTC model design. A number of responses suggested work should look further into ETD and the variations in centrally cleared margin among different classes of ETD (FIA, SIFMA AMG, IIF-ISDA).

More generally, a large number of (almost exclusively) clearing member and client responses noted particular areas of CCP IM models that should be reviewed for APC effectiveness, where further guidance or international standards should be provided and enforced, where improvements to margin APC performance can be made, and/or where additional guidance on how to review adherence to international standards should be provided (EACH, BlackRock, Insight Investment, EFAMA, ICI, IIF-ISDA, JPM et al, SIFMA AMG, FIA, TD Bank) (See Annex D for details). One response (IIF-ISDA) suggested IM

models should be analysed at a holistic level, rather than at the level of individual model choices. Another response (LSE Law) suggested the work should examine the responsiveness of different CCP margin models to changes for a range of different portfolios.

Some responses also suggested existing margin APC tools required in some jurisdictions could be enhanced further (SIFMA AMG, FIA, IIF-ISDA). In particular, one of the European Market Infrastructure Regulation (EMIR) provisions, a 25% buffer that can be reduced during stress, is not considered large enough, with many CCPs lacking a standardised procedure for releasing the buffer. Some responses noted that centrally cleared margin floors were too low once the GFC rolled out of the 10-year lookback window, and lookbacks should be enhanced to always include extreme market events, however far back in history. More generally, one response (SIFMA AMG) suggested that the EMIR rules leave too much discretion to CCPs in margin model application and implementation.

A number of non-CCP responses (PGGM, ICI, BlackRock, IIF-ISDA, FIA, SIFMA AMG, JPM et al) acknowledged that further centrally cleared margin model prescriptions could increase the cost of central clearing, and/or result in higher margin requirements during ordinary market conditions. Some responses suggested that these costs need to be managed (FIA, SIFMA AMG), while others suggest that they may be necessary to provide greater financial stability, ensure appropriate margin coverage across the cycle, and reduce dependency on other margin APC tools to manage times of increased volatility (BlackRock, IIF-ISDA, FIA, JPM et al). One response (ICI) suggested that regulators should not instinctively increase centrally cleared IM requirements during normal times simply to avoid rapid surges in margin calls during stressed periods.

A small number of responses suggested that further work is required on backtesting practices, given the impact of backtesting on centrally cleared IM developments (DBG), and for further work to examine centrally cleared margin breaches at the contract level in addition to the portfolio level (FIA, SIFMA AMG). A small number of responses noted support for the proposal to consider the role of clearing member practices when passing on margin calls to clients in dampening or amplifying the procyclicality of margin, with one response (LSE Law) suggesting that the burden of margin procyclicality falls more heavily on clients as opposed to members as they often hold more directional positions. A few responses (FIA, SIFMA AMG) also suggest that the operational framework for centrally cleared margin calls, including intraday IM calls, be reviewed (eg timing, currency, return of excess margin, credit for intraday payments at end-of-day).

IM responsiveness in non-centrally cleared markets

Regarding the design and performance of non-centrally cleared IM models, responses from clearing members and clients generally pointed to the ISDA SIMM model performing well, with predictability and a lack of procyclicality embedded into its conservative design. In contrast, responses from CCP-related entities typically pointed to a lack of data available and presented in the report on non-centrally cleared markets, arguing that this made it difficult to draw conclusions from the work. CCP-related entities suggested that, together with a lack of response in the SIMM model to volatility changes, this suggested that further work is required on non-centrally cleared IM responsiveness. One (DBG) response also suggested that further work should assess backtesting practices given how they can affect IM developments.

A number of responses suggested the ISDA SIMM model performed well, with low overall exceedance rates and a lack of procyclicality, stable IM requirements and high predictability (AFG, Scott Cogswell, IIF-ISDA, ICI). Many of these responses note that SIMM is inherently less procyclical and more conservative than CCP IM models (IIF-ISDA, BlackRock), with one response noting that SIMM is designed to incentivise central clearing. A number of responses also pointed to SIMM's governance framework

being robust and performing well (ISDA-IIF, TD Bank). Another response noted that SIMM model development is more collaborative and transparent than for centrally cleared IM models (SIFMA AMG). On this basis, a number of responses urged caution against changing ISDA SIMM to make it more risk-sensitive, as this could risk further procyclicality in times of stress (EFAMA, Insight Investment).

One response (IIF-ISDA) noted that it is important to consider the many interdependent factors which contribute to the timeframe necessary to recalibrate ISDA SIMM. This response also noted that any meaningful reduction in the time taken to reflect a recent market stress in ISDA SIMM – should it be deemed necessary – will require consistent global regulatory compromises with respect to model change notification and approval requirements under certain circumstances.

On the other hand, a number of responses suggest that the data presented in the report and available on non-centrally cleared markets are insufficient to draw conclusions on non-centrally cleared markets (CCP12, EACH, WFE, CME, LSEG). A number of these responses therefore suggest that further analysis is needed on non-centrally cleared IM models and their degree of responsiveness (EACH, CCP12, WFE, OCC). One response highlights the existing limitation of the SIMM model to accurately capture volatility changes, making it less responsive (LSEG), while another response notes that this could lead to a risk of undercollateralisation (Citadel). One other response (CME) suggests that the data in the report appear to suggest that large discretionary IM calls were made to supplement this unresponsive nature, therefore having a negative impact on liquidity preparedness. One response (Scott Cogswell) suggests that further evaluation of the bilateral remediation practices of firms whose portfolios showed material shortfalls is an important area for further consideration. In this context, a number of responses agree with the proposals and further work proposed (SMV Panama, NCC, DBG, Citadel, PGGM).

A number of responses highlighted markets and clients not in the scope of IM requirements for non-centrally cleared derivatives, and forthcoming expansions in the number of clients being brought into scope, and questioned how this could affect the report's findings (EFAMA, Insight Investment, IIF-ISDA, WFE). One response (Scott Cogswell) suggested that the evaluation of non-centrally cleared model responsiveness should distinguish between bilaterally exchanged IM to comply with BCBS-IOSCO rules, and one-way IM collected by banks using proprietary models. Others (CCP12, WFE, CME) suggested that further work should outline the risks from lack of margin collection in these markets might create, or how margin models in these markets might contribute to liquidity pressure. Another response noted that, for non-centrally cleared IM calls not subject to the SIMM model or the regulatory framework for non-centrally cleared markets, further work should be done on the application of the threshold for exchanging regulatory required IM, and the coverage of counterparties of these rules (noting the importance that these rules cover sufficient a number of relationships to promote central clearing).

Other key remarks

CCPs and market participants recommend expanding access to central bank accounts under a standardised account regime. Expanding access would promote financial stability and reduce interconnectedness between CCPs and the banking system.

Some market participants stressed that operational issues were underrepresented in the consultative report. These respondents stress the need to complete and implement work under way to improve and standardise processes not cleared before T+1.

In non-centrally cleared markets, some CCPs and market participants pointed to discrepancies between discretionary and SIMM IM and called for a review of regulatory IM thresholds to ensure that proper risk management functions are being performed. While smaller firms in isolation are unlikely to present systemic risk, in aggregate risk management failures across a number of firms could do so.

Other notable recommendations included improvements to infrastructure linkages between CCPs and banks and revisiting CCP capital frameworks to ensure an appropriate amount of CCP SITG is included in the default waterfall.

Abbreviations

APC	anti-procyclicality
BCBS	Basel Committee on Banking Supervision
BIS CPMI	Bank for International Settlements' Committee on Payments and Market Infrastructures
CCP	central counterparty
CPMI	Committee on Payments and Market Infrastructures
ETD	exchange traded derivatives
GFC	Great Financial Crisis
IM	initial margin
IOSCO	International Organization of Securities Commissions
ISDA	International Swaps and Derivatives Association
MMF	money market fund
MPOR	margin period of risk
NBFI	non-bank financial intermediation
OTC	over-the-counter
PFMI	Principles for Financial Market Infrastructures
SIMM	Standard IM Model
VM	variation margin

Annex A: Stakeholders that submitted non-confidential written responses⁴

Commenter	Category
ABN AMRO Clearing Bank, Barclays, BlackRock, Citigroup, Deutsche Bank, Goldman Sachs, JPMorgan Chase, Société Générale, T. Rowe Price, UBS and the Vanguard Group (JP Morgan et al)	Clearing member
AFG	Client
BlackRock	Client
CCP12	CCP
Citadel Securities	Client
CME Group (CME)	CCP
Cogswell, Scott	Other
Crédit Agricole	Clearing member
Deutsche Börse Group (DBG)	CCP
Euronext Clearing	CCP
European Association of CCP Clearing Houses (EACH)	CCP
European Federation of Energy Traders (EFET)	Client
European Fund and Assess Management Association (EFAMA)	Client
FIA	Clearing member
Global Legal Entity Identifier Foundation (GLEIF)	Other
Insight Investment	Client
Institute of International Finance (IIF) and the International Swaps and Derivatives Association (ISDA) (IIF-ISDA)	Clearing member
Investment Company Institute (ICI)	Client
London School of Economics and Political Science – Law School (LSE Law)	Other
London Stock Exchange Group (LSEG)	CCP
MEW Consul	Other
National Clearing Centre	CCP
Options Clearing Corporation (OCC)	CCP
PGGM Investments	Client
SEC Thailand	Other
Securities Industry and Financial Markets Association’s Asset Management Group (SIFMA AMG)	Client
SMV Panama	Other
TD Bank Group	Clearing member
World Federation of Exchanges (WFE)	CCP

⁴ Stakeholders who requested that their responses remain confidential have not been listed.

Annex B: Summary of virtual stakeholder outreach

Workshop 1: November 2021 13.00–15.00h CET

1. Increasing transparency in centrally cleared markets

CCPs' views

- The general rationale for CCP transparency works well, and – according to CCPs – the majority of CCP members noted that they understand how CCPs policies and practices work. The CCPs observed that historically participants have wanted to know how IM models work to protect themselves against other participants' defaults, and now it seems they are also interested regarding the predictability of margins.
- Margin models are extremely transparent and are described in detail. Therefore CCP representatives suggested that maybe it is more a question of packaging the information in a different way for market participants to understand it better. This is something CCPs would be glad to facilitate further, but of course there are certain decisions regarding margins that CCPs have to make themselves that cannot be negotiated participant by participant. Moreover, further disclosure (which some note that would be welcome) may be challenging due to the need to protect the privacy and integrity of clearing members in some respects.
- Margins would and should respond to changing circumstances and this is what happened in the March turmoil. This will happen again without major differences next time something similar takes place.
- The VM component has been the primary component of margin calls and is as predictable as can be, taking into account the impossibility to predict prices.
- Regarding IM, a CCP representative noted that many CCPs already provide calculators in which one can see what will happen to the total margin requirement when a change of position takes place, and they are open to providing detailed descriptions of how the model is established, what kind of scenarios may occur etc, which are extremely useful to foresee what margin parameters could be in certain circumstances. However, another CCP representative did not believe the statistics provided as to the number of CCPs that provide margin simulators, or they may exist but clearing members may not seem to have heard about them. The representative suggested that the simulators may not be very well advertised. However, the use of such simulators may be more limited due to their complexity since, in addition to volatility, one needs to take into account the scenarios leading to that increase as well as portfolio changes.
- In some jurisdictions, clearing members have discretion as to the amount of margin they ask clients to post provided it is higher than the margin prescribed by the CCP. CCPs argued that often clients' lack of transparency is due to the actions of their clearing members and not the CCP.
- CCPs asserted that heterogeneity of margin practices and APC tools is actually a good thing. It would be riskier if all CCPs were adopting the same approaches and measures and this could have very negative consequences for the next crisis as we do not know how what the next crisis would look like.
- Areas where more could be done include the way how credit must be managed in the relationship between clearing members and clients as well as transparency in non-centrally cleared markets.

Clearing members' views

- Transparency should be the level playing field, although not everything should be public (eg sharing of risk committees related information should be restricted).
- There are different levels of transparency about CCP models across CCPs and jurisdictions but in general, clearing members struggle a bit for sufficient information and details about models. There is an opportunity to promote some level and frequency of transparency on how the models performed versus expectations to help the members understand.
- Lately, the focus has mainly been on credit risk mitigation and this has opened up challenges on liquidity risk, together with the inability of transparency to predict liquidity requirements.
- Representatives from clearing members also acknowledged the complexity of margin calculators required to account for both changes in positions and market changes. However, they argued that having rough numbers from CCPs may be more helpful/enough for participants, to foresee how much margins may increase in times of crisis (what happens if volatility increases by x%). This could be supplemented with backward-looking numbers including margin increases in March 2020. It may also be very useful to let participants, clients and members know what part of the margin called was due to APC measures.
- Transparency has three different dimensions:
 - *Present.* The understanding of core IM is reasonably good, but the understanding of add-ons is not as strong. Regarding add-ons, while some progress has taken place in the recent years regarding transparency, clearing members still struggle to understand several issues regarding add-ons. For clearing members it is difficult to break down the margin call into IM and VM (normally clearing members get just a number to be paid). Clearing members are constrained in how much margin they are able to call from clients.
 - *Forward-looking.* Clearing members get information from some CCPs on some scenarios but it normally relates to what happens if you change your positions in a static model and not around a change in scenario, or what happens if parameters of the models change. It may be useful to further discuss about the usefulness of these tools and how they can be developed. Consideration also needs to be given to the severity of the scenarios used in supervisory stress tests. A fully documented and published APC framework would be very helpful to help members understand ex ante how APC measures would unwind as we reach stress scenarios.
 - *Backward-looking.* The PFMI CCP disclosures are very helpful and a great start to understanding how the markets behaved. But there is room for further improvement both in terms of the data covered and the time of release. For example, the moves in April 2020 were not reported until September; this is a long delay in understanding what happened. Even the information about March was not published until June, which is a little bit of a delay.

Clients' views

- Client representatives supported the conclusion in the draft report that March 2020 was a real stress test and reforms undertaken worked really well to address it.
- ETD markets that saw the largest spikes in IM, as highlighted in the report. Within ETD there are quite different types of asset classes and volatility profiles of underlyings, so it would be useful to unpack/break down the ETD figures a little bit more.
- Increases of margin are not necessarily welcome, but it is reasonable that IM increases in times of stress (and this provides additional protection against the default of other participants). The key is to ensure that the increases in IM are transparent, predictable and help mitigate risk without having any unintended consequences.

- Other representatives from clients considered that the current models with sharp increases in IM have not been adequate in terms of the stress that we lived through last year and this leads to the conclusion that the margin requested was inadequate in the event of a stress.
- The degree of disclosure seems to be inadequate for participants in the light of their role in the system and, therefore, further governance and transparency would be necessary, including regarding the provision of feedback to CCPs and regulators.
- There is still room to improve the automation and timing of margin calls, including communication, calculation, predictability etc.
- Client representatives welcomed the development of predicting calculators, and also improvements by CCPs to allow participants/clients to do “what if” scenario planning as well as historical analysis. End user sophistication varies greatly but calculators should be available for direct use by certain firms and for clearing members to provide tools to their clients, and even for some third-party service providers.
- The emphasis should be on calculators instead of on disclosures, since, even though disclosures are helpful, they are “one size fits all” and cannot help the heterogeneous types of market participant.
- The report may be focusing excessively on centrally cleared markets and does not highlight some of the possible defects of the SIMM model. There seems to be a relative stability of non-centrally cleared margins compared with those of the centrally cleared space, which is awkward since the products in the non-centrally cleared space tend to be less standardised. It would be good to have a look at the centrally and non-centrally cleared side together since the best answer may be in the middle.
- A representative from clients asked for more transparency on the APC tools by CCPs and more consistency across CCPs in terms of APC tools, if necessary through regulatory intervention.

2. Enhancing liquidity preparedness of market participants as well as liquidity disclosures

Clearing members’ views

- Central bank interventions during the crisis helped tremendously. Since the reforms in recent years for banks, CCPs and for other stakeholders helped a lot, the discussion should rather focus on improvements for a framework that has worked pretty well over the past year than on fundamental changes.
- Clearing members did not struggle to pay margin calls but the fact that there was more cash and overcollateralisation does not mean that there was no stress in the market.
- Liquidity preparedness means that market participants are prepared for an overnight call as well as intraday calls. In this context, a CCP must be able to call intraday if necessary just as clearing members should be able to call intraday to clients if necessary. However, clearing members’ discretion in this respect was somewhat put into doubt in the report vis-a-vis mitigating procyclicality.
- The aim is to mitigate procyclicality as much as possible, to make as few intraday calls as possible and to make intraday calls as predictable as possible. Clearing members acknowledged that there will always be certain degree of unpredictability, but argued that anything that makes margin calls more predictable may help to enhance preparedness. Some elements that could contribute to this are more effective APC measures and improved transparency on margin requirements and CCPs’ tools to calculate IM.

- Regarding intraday calls, it would be helpful if they were made at the same time every day, if CCPs could net these calls as much as possible and if they could be met by non-cash collateral.
- Liquidity preparedness varies a lot. The data seem to be a bit scarce and very heterogeneous. Banks as clearing members have liquidity buffers not only due to regulatory requirements. Clients are very heterogeneous.
- Some of the issues were of an operational nature and there is scope to optimise operational processes.

Clients' views

- Some figures in the report may be underestimating the existing stress in the market. It is possible that in some markets there was additional margin in the system that lowered the calls (due to regulatory APC measures)
- The buy-side is looking for enhanced transparency and to have the appropriate, right-sized and transparent margins for the risk that is introduced.
- Regulatory requirements for transparency, governance and APC really need to be consistent.
- Institutional investors with no access to central banks need to transform cash into some sort of MMF and become reliant on the liquidity of the money market funds and this reliance is a risk that can hardly be mitigated.
- Central bank interventions in March 2020 helped alleviate these issues that probably the market may have not been able to solve on its own or only with worse side effects.
- For pension funds, if money markets dry up, the alternative is fire sales. And this may not be very useful because this may increase interest rates and would therefore enlarge the VM calls. This kind of liquidity crisis should be avoided if possible.
- Since it is unlikely that this trend towards cash collateral in previous years' regulations will decline in the future, there is a need to look into turning money market into cash quickly enough.

CCPs' views

- At one CCP, participants were asked to meet the increased margin calls often within one hour, and this generated concerns as whether members would be able to meet them on time. Fortunately CCP members were able to meet them.
- Some CCPs did not make ad hoc calls but used their daily scheduled margin calls to ask for the increased margin needed, to avoid unexpected calls in stress markets.
- Unexpected calls (ad hoc calls) should be avoided as much as possible, both in normal times and in periods of stress, unless there is an extreme event.
- If there had been some difficulties in meeting margin calls, it would be good to explain them in the report and standard-setting bodies should carry out some work to solve the potential issues encountered.
- One CCP representative reported that, during the March turmoil, there was an increase in margins and an increase in cash, as well as an increase in excess collateral (this means participants saw the CCP as a safe place to leave their assets and may allow clearing members to pre-fund margin). The ratio of cash and non-cash collateral remained quite stable. Clearing members were able to meet the increased margin calls and increased cash and excess collateral, and this helped to meet large, unexpected margin calls during the day or the following day as a consequence of these extreme market moves. On the investment side, there were no issues either but there was

an increase in demand for good-quality collateral. The currency mix of cash collateral was also quite stable.

- In March 2020, collateralisation levels increased and CCP members were able to meet calls. Collateralisation of market moves is a good thing and mitigates counterparty risk.
- It is both impossible and undesirable that all CCPs have the same policy, due to differences in several CCP-related factors.
- The Lehman and Brexit experiences helped us to deal with the Covid crisis. The Lehman event is more than 10 years ago and therefore generally no longer falls within the lookback period used in margin models.
- Some CCPs test to ensure that their margin models do not overreact in case of a crisis. If there is unprecedented volatility, they hope to retain that in the lookback period for quite some time.
- ETD markets, where the margin increases were more procyclical, may be more prone to accelerated margin increases.
- For a single client today's IM is tomorrow's VM. But this does not work for omnibus accounts due to netting, so the total liquidity need may be different from the liquidity need for each individual account.

Workshop 2: 30 November 2021 13.00–15.00h CET

3. Evaluating the responsiveness of centrally and non-centrally cleared IM models to market stresses

CCPs' views

- There are several ways to measure how APC tools and margin models respond to stress and changing market conditions. That response should be relative to the violent moves and stress faced. Obviously, in this case the once-in-a-century pandemic drove significant market uncertainty and violent moves in almost all asset classes, in particular in equities. Market moves need to be taken into account in the analysis of margin changes to see whether they were appropriate to contain those market moves. It is necessary to compare the actual margin changes to observed volatility. Across the board, changes in volatility in February–March 2020 significantly exceeded margin changes by CCPs. A CCP representative noted that they found that changes in volatility were about four times the changes in margin. The CCPs argued that there was no evidence that models overreacted, and the response was mild compared with the market conditions faced.
- Another way to look at volatility and margin changes is to focus on VM relative to IM. VM significantly exceeded IM calls, VM was about three times IM during the time period, in particular when comparing peaks.
- It is also useful to compare the liquidity resources of market participants with margin changes. Data in the report show how successful CCPs were in dealing with market moves and muting the impact of those changing market conditions on market participants. Data does not seem to support that there was a liquidity shock due to margin calls draining liquidity in already quite stressed markets.
- CCPs have developed different approaches to mitigating the responsiveness of margin models. It is good that CCPs do not respond in the same way because of the risks this may entail. This also recognises that different asset classes have different dynamics and different models behave

differently. It is healthy to have a variety of options because it stimulates innovation. Currently there are new approaches to dealing with APC, such as:

- Forward-looking approaches using implied volatility.
- Filters on simulation models in specific circumstances.
- Any further improvement in mitigating responsiveness is welcome but the outcome would not be smaller margin calls. As this is the nature of the problem, the markets need to be prepared for increased margin calls in case of an extreme increase in volatility.
- Non-centrally cleared markets deserve further analysis in the report, since there is less available information on non-centrally cleared markets than on centrally cleared markets. To map the network and have a macro perspective, data on the non-centrally cleared markets are also necessary. If you take into account not just SIMM but information on netted non-centrally cleared discretionary margin calls between February and April, there was a relatively significant increase (actual flows of margins) – the non-centrally cleared market had a significant impact relative to the size of margin flows in centrally cleared markets. Some clients revealed that the highest margin calls appeared to be driven by the non-centrally cleared markets.
- It is also important to look at behaviour and incentives, since they could lead to unintended consequences. Limiting CCPs' ability to make participants accountable for the risks they bring to the system may give participants the incentive to increase the risk (as an unintended consequence) and this could undermine confidence in the CCP. Attempts to limit the amount/speed of increase in margin calls have a clear impact on the behaviour and risk appetite of participants.
- According to the survey results, intermediaries did not point out margin parameters as one of the main drivers of the margin changes they suffered.

Clients' views

- Although the system functioned well during the crisis, we could see there was a problem. In the next crisis, it could be problematic to find the liquidity to meet margin calls. This risk is heightened due to the clearing mandate, which could pose a problem in the future.
- Representatives of clients proposed some alternatives (as buy-side participants): (i) to keep margin models more conservative and enhance disclosures of IM models; and (ii) excess margin as a good way for the buy-side to deal with times of stress, as well as a broader list of eligible collateral (with the appropriate haircuts and including MMF units).
- Clients argued that it is important to ensure that repo markets function well so that some entities are not excluded from the market because they are unable to transform high-quality collateral into cash. There may also be some adjustments to bank capital requirements that could be adopted so that banks support buy-side entities.
- One client representative noted that CCPs think they managed the crisis well but some clients' experience as end users is different. This client did not have issues meeting margin calls due in part to its robust and enhanced internal liquidity risk management framework. But the client did experience unprecedented levels of IM (doubling the funds). They noted that, unlike VM, which represents a redistribution among market participants, IM results into a flow of liquidity outside market participants and into the CCP. They observed that the most pronounced increases took place in the United States and less in Europe and it was suggested that this could be due to the differences in APC measures. However, the client representative asserted that APC measures were not sufficient in Europe either and it is unlikely that the problem will be solved in the future.

- The performance of IM models, in particular in ETD, underscored the importance of some clients' positions. Stress conditions were so extreme that many margin models did not account for them.
- In terms of products, and particularly futures, the issue is that IM models are not sufficiently conservative, particularly in the United States. CCPs should have the appropriate lookback period, which for some clients should be more conservative, and MPOR (to be calibrated to the risk of the specific contract). This will potentially result in increased prices and costs, but it is preferable to have higher margins in peaceful times than to deal with procyclicality in crisis times.
- CCPs are reluctant to share their tools to estimate IM moves. If such tools currently exist, they are not scalable.
- CCPs should not compete on margins.
- In non-centrally cleared markets, IM was low compared to VM. Funding of VM should not be an issue since this is just the daily movement of margins between winners and losers and many market participants have tools to estimate margins depending on market prices/moves.
- A client representative agreed that IM in non-centrally cleared markets should remain stable but some reconsideration was due regarding the types of eligible collateral to try to avoid another liquidity crisis in the future.

Clearing members' views

Non-centrally cleared markets

- The information on non-centrally cleared markets is much more fragmented than in the centrally cleared market. Margin stability is especially important in the non-centrally cleared market since participants that are to be subject to non-centrally cleared margins are smaller and may not be so much prepared in terms of liquidity as larger players. The stability of a defined published model for margins allows participants to foresee liquidity needs. The trade-off is that the margin will be higher in quiet times – low volatility. SIMM has been designed to have higher margins and higher stability, and therefore radical volatility is not to be expected. IM in non-centrally cleared world is not more volatile than in the cleared market.
- The industry is looking at ways to address the concerns about the process for reviewing/calibrating margin models in non-centrally cleared markets, in particular to shorten the recalibration model. But they need time to gather information since some of the information they use is based on non-public information and the different steps in the procedure take six to nine months. Some regulators also need some time to review. Also all firms involved have to implement and they we need to see how it goes. The industry is also looking into remediation, how to improve reporting to the governance of margin models in non-centrally cleared markets.
- Regarding transparency on SIMM, there are reports on many issues (calibration reports, backtesting reports, third-party validation reports on the calibration etc).

Centrally cleared markets

- IM is a primary pillar for risk management in CCPs and competitive pressure should not result in low margins in calm markets. Even before the Covid crisis happened, some clearing members noted that margins should be robust and stable and procyclicality within market moves should be limited.
- Clearing members welcomed the extensive data-gathering undertaken and the extremely rich and meaningful analysis carried out in the report, which has shown some of the vulnerabilities market participants had, particularly in ETD markets with such big margin increases, and the

static portfolio backtesting. The report established that it was market volatility and responses to market volatility rather than portfolio rebalance that were the reason for the increase in margins.

- A clearing member representative noted that the above is in line with their experience and recommended looking into contract-level data in addition to portfolio level data as there may be some exceedances at portfolio level that may be hidden.
- Margin levels have been coming down as volatility stabilised after the initial phase of the pandemic, but they may be higher than before and this raises the question as to whether the margin levels were appropriate when entering the pandemic.
- It is clear that, when there is volatility, margins need to increase. But the rate of increase in some cases was higher than in the last financial crisis. Some clearing members wondered whether those events had been appropriately taken into account as part of margin models, and if not, would doing so have meant that such increases would have been more muted. There are several choices according to model design and a combination of them has an influence on how margins increase, such as the lookback period. A clearing member noted that, from the report, a 10-year lookback period was an exception, and also questioned whether 10 years is sufficient. They argued that models should be calibrated to take into account specific products. A good practice would be to ensure that CCPs have mechanisms to test how CCPs models are addressing APC. In this respect, it was noted that EMIR already asks CCPs to define a risk appetite and measure how they perform regarding that risk appetite; similarly in EMIR there is a coverage level and confidence interval and CCPs are measured against those targets.
- The report shows that CCPs already have a risk appetite in place. But a clearing member argued that there is clearly something to be done on how these risk appetites are calibrated and set regarding market participants' ability to meet increases in margin calls (rather than defining a hard cap on margin increases that a CCP is never allowed to exceed). Risk appetite depends on the product and period over which the margin increase is considered. For some products a risk appetite is needed for a longer period of time to see how much the margins have increased on an accumulated basis. It is also necessary to discuss with market participants to take into account what would be reasonable for them in this respect. The difficulty of setting a sensible risk appetite was highlighted. Further guidance from regulators in terms of how to think about this would be helpful.
- A clearing member noted its agreement with the key findings in the report and supported further work of the regulators in four specific areas:
 1. Enhancing the overall resilience of margin models and ensuring that stresses are rightly incorporated in the lookback period.
 2. Reviewing how the risk appetites are being calibrated across CCPs and ensuring they are in line with market participants' ability to meet increased margin calls.
 3. Enhancing the governance framework on how margin models are managed so that market participants can provide feedback to CCPs and CCPs have to show how they are dealing with the feedback they receive from market participants.
 4. Enhancing transparency and predictability so market participants know what is coming and are prepared to meet increased margin calls.

4. Other issues: streamlining VM processes and data gaps in regulatory reporting

Streamlining VM processes in centrally and non-centrally cleared markets

- A representative from clearing members suggested some products that are used for risk reduction should be exempt from the clearing obligation so that more people can use them.
- Operational processes may have had an impact on amplifying margin calls during the crisis. In some cases, give-ups of positions were not processed for several days. For risk-reducing trades, this delay resulted in increased margin obligations as the executing broker had to unexpectedly pay margin on these positions and the clearing broker and client did not receive the expected netting benefits of the offsetting positions. There may also have been a scalability issue and there is a demand for standardisation over the whole system to solve concerns on operational issues. Further information on this would be welcome. In some parts of the markets, the combination of increased margin and volatility had a significant effect and some small participants said they were lucky to have external support to help them address operational issues. There were also important operational issues in the bilateral markets with more heterogeneity across participants.
- In view of the above, some clients believe would be good to take a look into how business continuity plans and cyber protection have been improved after the crisis.

Identifying data gaps in regulatory reporting

- The critical data elements (CDE)⁵ are an important input that regulators have incorporated/are incorporating in their trade reporting rules and may improve the oversight of regulators on margins, collateral etc over the next few years. It is important that these elements are incorporated in a consistent way. Some meaningful improvements may also be carried out in access to trade reporting data, which could further benefit from some improvements in aggregation and comparability of data.
- It may be better for CCPs to publish their data directly instead of through regulators. Some CCP representatives would like to receive the same type of data regarding non-centrally cleared markets, in particular on IM and VM and model performance.

⁵ CPMI-IOSCO, *Harmonisation of OTC derivatives critical data elements (other than UTI and UPI)*, April 2018, www.iosco.org/library/pubdocs/pdf/IOSCOPD598.pdf.

Annex C: Additional suggested disclosures

Clearing member disclosures

Separately, some CCP respondents (CCP12, CME Group, DBG, EACH, LSEG, NCC, WFE) call for further transparency from clearing members. One respondent (WFE) included some specific suggestions for some clearing member disclosures:

- **In centrally cleared markets:**
 - Number and name of CCPs the clearing member is connected to directly, including if it provides client clearing services;
 - For a clearing member's own and client clearing activity, reported separately for client and own/house activity: (i) total IM required and deposited across all CCPs, split by collateral type; (ii) maximum and average aggregate IM call on any given business day at any given CCP and across all CCPs; and (iii) maximum and average total VM paid on any given business day at any given CCP and across all CCPs.
 - Total default fund required and deposited across all CCPs, split by collateral type;
 - For a clearing members' client clearing activity: (i) total IM required from and deposited by clients, split by collateral type; and (ii) number of client default(s) and the related amount of the loss caused as a result of default in excess of IM for each default; (iii) percentage of open position and IM required; and (iv) concentration – for the top 10 clients and top five clients, as a peak and average over the quarter
 - Results of backtesting and stress testing – eg actual peak and average margin breaches and achieved margin coverage level;
 - Average daily notional for OTC and average daily volume for exchange-traded derivatives;
 - Maximum and average margin calls as a percentage of total liquid assets and percentage of total reserves at central banks;
 - Maximum and average daily security settlement payments (ie receive versus payment)
 - Maximum and average daily FX settlement payments (ie payment versus payment), including Continuous Linked Settlement activity.
- **In non-centrally cleared markets:**
 - Number of connections – eg, number of master agreements and number of counterparties faced with (i) two-way IM and VM; (ii) IM; and (iii) VM;
 - Maximum and average IM paid and received across all counterparties and to any given counterparty;
 - Maximum and average VM paid and received across all counterparties and to any given counterparty;
 - Maximum and average gross credit exposure and gross market value;
 - Results of measures to risk metrics – eg, sensitivities to basis point move for primary factors (eg DV01), value-at-risk, and peak and average margin breaches, as well as achieved margin coverage level; and
 - Average daily notional volume and notional outstanding by asset class.

- Maximum and average margin calls as a percentage of total liquid assets and percentage of total reserves at central banks;
- Maximum and average daily security settlement payments (ie receive versus payment);
- Maximum and average daily FX settlement payments (ie payment versus payment), including Continuous Linked Settlement activity;

In addition to the disclosures above, the respondent suggested that clearing members should provide a high-level description of the models they use to set IM for their clients, including (i) type of model (eg value-at-risk); (ii) MPOR (eg two days, five days, 10 days etc); (iii) lookback period (eg two years, five years etc); and (iv) Add-ons (eg concentration, liquidity etc).

CCP disclosures

Some clearing member representatives (ISDA-IIF, FIA) suggested additional CCP disclosures on usage of APC tools, including:

- CCPs' risk appetite for procyclicality;
- The extent of usage of APC tools in their IM so that market participants can predict IM calls during stress periods;
- Disclosure of use of APC tools, so that participants can determine effect on IM during stress;
- Disclosure of adjustment specifications;
- Analysis of IM under product-specific extreme volatility scenarios;
- Back testing results/margin breach info at account and product level, including frequency of margin breaches, largest relative margin breach and average relative margin breach;
- For significant products, disclosure metrics on margin breaches over one day, two days or five days periods as well as maximum one-day, two-day, five-day or one-month margin increase over the prior quarter with a comparison of volatility change in the same period;
- Specification of adjustments made to address procyclical behaviour, such as volatility floors or scaling schemes (decay factor);
- Analysis of how margins would respond to extreme volatility scenarios (eg, 10%, 20% or 30% increase in volatility) that are specific to each of the significant products cleared by the CCPs; and
- Disclosure of whether current margin rates are driven by models or APC tools.

Annex D: Summary of APC improvements suggested by some respondents

- **MPOR.** Some clearing members and clients (FIA, JPM et al, SIFMA AMG, BlackRock, ICI) suggested that models should incorporate appropriate and defensible assumptions on MPOR, with one of the responses from clearing members (JPM et al) arguing that it should not be a function of whether the product is traded on an exchange or OTC. A clearing member industry association (IIF-ISDA) argued that MPOR should be aligned with default management strategy with a floor of at least two days, and that longer MPOR could be used for client trades.
- **Lookback period.** A number of clearing members and clients suggested that lookback periods should include relevant historical market trends (FIA, JPM et al, SIFMA AMG, BlackRock) and stress events (FIA, IIF-ISDA, JPM et al, SIFMA AMG, ICI) with appropriate stress weighting (FIA, IIF-ISDA). A response from a client industry group (EFAMA) suggested lookback periods should be more consistent (EFAMA), while clearing members industry groups (FIA, IIF-ISDA) argued that one-year lookback periods are inadequate, and should be five to 10 years.
- **Margin add-on.** One of the clients (BlackRock) argued that concentration risk should be addressed through appropriate margin add-on. A group of clearing members (JPM et al) argued that concentration add-on must not be considered a substitute for appropriate MPOR, but must be adequate to account for concentration risk.
- **Margin offset.** A client (BlackRock) suggested correlation assumptions should be scrutinised when portfolio margining (margin offsets) are offered.
- **Margin floors.** A CCP respondent (EACH) suggested margin floors should be strengthened, while a client (EFAMA) suggested implementing minimum margin floors and several clearing members (FIA, IIF-ISDA) margin floors should be calibrated using stressed lookback periods (FIA, IIF-ISDA).
- **Volatility floors.** A group of clearing members (JPM et al) suggested that minimum volatility assumptions should be used to ensure margin is maintained in periods of low volatility.
- **Decay factors.** Clearing member and client industry groups (FIA, IIF-ISDA, SIFMA AMG) suggested that decay factors should be reviewed and considered.
- **Margin buffers.** A clearing member industry group (IIF-ISDA) suggested that, if used, margin buffers should be calibrated using stressed lookback periods.
- **Confidence intervals/IM targets.** A response from outside the CCP/clearing member/client community (LSE Law) suggested that regulators should consider the case for setting maximum as well as minimum levels for margin targets, as high targets are more difficult to backtest, create uncertain estimates, create more procyclicality and reduce the effectiveness of the default fund.
- **SPAN.** A clearing member industry group (IIF-ISDA) suggested reviewing the effectiveness of models that capture increased volatility immediately, relative to those with a lag (eg SPAN).