

The future of derivatives clearing – finding the right balance between efficiency and resilience?

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Whereas EMIR 3.0's main focus was geared towards the Active Account Requirement and whether or not to centralise the supervision of EU CCPs with the European Securities and Markets Authority (ESMA), regulators and market participants would be ill-advised to let discussions over third-country CCP equivalence issues and supervision of CCPs distract them from other important and persistent challenges in the derivatives clearing markets. In this policy brief, we focus on three pressing issues that require attention: clearing access and capital rules, portability and clearing models, as well as liquidity and collateral optimisation. Failure to address them risks undermining the key driver for derivatives clearing, which is increasing financial stability.

- *Clearing access and capital rules.* A mandatory clearing obligation assumes all clients have access to clearing. Yet this is not always the case. Due to the high entry barriers for clearing members (CMs) and the subsequent concentration of clearing services at CM level, the market may end up with fewer and fewer providers. On top of this, because more transactions must be centrally cleared (e.g. pension funds clearing exemption expired in June 2023) and stricter US capital requirements will be imposed, this may further restrict clearing capacity, and thus access to clearing services.

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This policy brief builds on the discussions held during the conference 'Changing the fundamentals? EMIR 3.0 and the future of clearing', organised by CEPS and ECMI on 22 January 2024 to mark the recently published book, *Clearing OTC Derivatives in Europe* (Bas Zebregs, Victor de Serière, Patrick Pearson and Rezah Stegeman (eds) – Oxford University Press 2023). Comments received by Victor de Serière, Emma Dwyer, Erik Floor, Tina Hasenpusch, Julien Jardelot, Athanasios Kagiara, Leon Lopez Cuervo and Corinna Schempp are greatly acknowledged. These comments were expressed in a personal capacity and do not necessarily reflect the views or positions of their respective organisations. The views expressed in this piece are those of the authors and do not necessarily reflect those of their organisations.

- *Portability and clearing models.* Maintaining access to clearing when a clearing member defaults is vital. Although EMIR seems to suggest that guaranteed portability is achievable, this may not be the case, especially during times of market stress. Structural differences between the EU and the US market make portability much easier in the latter. Therefore, it's good to see that EMIR 3.0 introduced some steps to facilitate portability regarding the client consent process as well as the introduction of temporary waivers for KYC and capital requirements. Apart from that other measures will be needed which may include offering of wider variety of clearing models (including sponsored ones). However, a prerequisite for any of these solutions to become truly effective is that sufficient clearing capacity is available in the market. This also requires an appropriate regulatory environment for client clearing members to offer clearing services.
- *Liquidity and collateral optimisation.* Whilst mandatory clearing has decreased counterparty credit risk (assuming that a CCP itself does not default), it has contributed to increased liquidity risk. This has triggered discussions about sudden increases of the margin obligation (procyclicality), eligible collateral and collateral transformation services, as well as about the need for a central bank backstop. Broadening CCP eligible collateral – provided that this collateral is sufficiently liquid and with appropriate haircuts – will help market participants mobilise, allocate and optimise assets more quickly and effectively. Extending direct access to liquidity, which may include cleared repo, will ensure that liquidity access is as smooth and deep as possible when it is most needed. But even then, extreme circumstances may occur which cannot be mitigated by the market. For these tail risk events the EU should, following the example of the Bank of England, (re)consider whether the possibility of an emergency liquidity backstop facility could be beneficial for both a limited number of creditworthy counterparties (e.g. pension funds and insurers) and the stability of the financial system as a whole.

Clearing access and capital rules

Clearing access can mean [different things](#). First, some smaller or less attractive clients struggle to access clearing. A second issue is that clients with CM relationships in place may no longer be able to clear if their CM uses discretionary contractual powers to not accept new transactions. CMs typically have these powers subject to certain notice periods which can effectively mean that access to clearing is not possible when clients need it most – even though a client's own CM(s) did not default¹.

One of the provisions of the [EMIR Refit](#) was that clearing service providers offer and provide clearing services under commercial terms considered fair, reasonable, non-discriminatory and transparent (principles known as FRANDT). This regime's aim of this regime was to increase access to clearing (especially for those whose trading volume in derivatives is limited and who face difficulties in accessing clearing). However, it ended up being watered-down, in such a way that the status quo could be maintained (provided that CMs could justify their actions on a reasonably and duly justified basis).

¹ CMs' contractual powers are the first line of defence in the case of a client's credit profile deteriorating and are used to preserve loss mutualisation. Regulators expect CMs to have such contractual provisions and exercise them when necessary. See for example, the ['Final Notice'](#) issued by the Bank of England's Prudential Regulation Authority to Credit Suisse regarding the Archegos default. Or the Federal Reserve's ['reminder'](#) regarding safe and sound practices for counterparty credit risk management in light of the Archegos default. On the other hand, CMs' discretionary powers – especially if these powers are not linked to a client's deteriorated credit profile – may expose clients to the risk of suddenly being cut off from access to clearing.

The inherent network effects of clearing lead to a high concentration in CCP activity. This is because, each additional clearing participant increases the benefit of central clearing by increasing the liquidity of the products cleared, enabling multilateral compression opportunities and allowing any common counterparties to remove counterparty risk by novating their contracts to the CCP. Although the concentration of clearing services at CCP and CM level could have been foreseen when EMIR was enacted, at that time the regulators' primary focus was on counterparty credit risk instead of concentration risk. This was possibly because they didn't fully appreciate the netting benefits, capital implications and infrastructural costs associated with clearing.

In the US, for example, the number of [futures commission merchants](#) (FCMs) holding required client segregated funds has [steadily declined](#) over the years from 22 in 2014 to 13 in 2023. Moreover, 94 % of the volume is handled by just seven firms, of which six are US banks. As more transactions must be centrally cleared (e.g. given that the pension funds exemption expired in June 2023) the market may end up with fewer and fewer providers, thus restricting access to clearing services even further.

Capital rules and capital requirements also affect clearing access. Concerns have been expressed about US capital rules and especially the Basel III Endgame – the amount of capital that banks must have against the credit, operational, and market riskiness of their business. It's estimated that the proposed US capital rules could lead to an increase in the capital required to engage in client clearing activities by about [20 %](#) to [22 %](#). However, and in a separate move, the Federal Reserve Board proposed amendments to risk-based capital surcharges for global systemically important bank holding companies (G-SIBs). The so-called [surcharge proposal](#) could lead to a weighted average rise in capital requirements of [57 % for G-SIBs](#). Thus, the two proposals may collectively increase capital by almost [80 %](#) (or around USD 7 billion). Such an increase would be very impactful for CMs, which may reduce the service they provide or tailor it to a certain class of clients and become more selective. Furthermore, it will reduce the chances of portability in the case of stress events. Thus, preserving the incentives for CMs to provide access to central clearing – as the G20 intended – is vital.

The role that capital requirements play on clearing should be examined from a global perspective. The current high concentration of clearing services in US CMs means that an adverse action in the context of US capital charges would have ramifications across the board. This is because US CMs' ability to provide clearing services would be limited by the cost of them providing the capital to do so. Consequently, it will have a knock-on effect on their ability to service EU clients.

Portability and clearing models

The 2012 [Principles for financial market infrastructures](#) (PFMIs) state that: 'A CCP should structure its portability arrangements in a way that makes it highly likely that the positions and collateral of a defaulting participant's customers will be transferred to one or more other participants'. Portability aims to avoid any negative implications from closing out client portfolios and relates to both clients' positions and assets (collateral).

EMIR wording seems to suggest that guaranteed portability is achievable, by entering into a written agreement with a back-up CM stating that it will accept the clients' derivatives portfolio if another CM defaults. But portability cannot be guaranteed, especially during times of market stress. There are several reasons for this. First, during times of stress the creditworthiness of the back-up CM may have deteriorated, which could have an impact on the back-up CM's risk profile because of additional margin calls, liquidity stress or higher default fund contributions. Second, the client portfolio may become more

volatile and thus poses risk to the new CM. Third, there are operational concerns as porting must be done within a short porting window (e.g. 24 hours) which can be very challenging (or virtually impossible) during times of stress. Additionally, there may be capital and risk management implications of entering into guaranteed portability agreements. In practice, CMs are therefore not willing (as it may not be prudent for them) to give a hard contractual commitment to act as back-up CMs – given credit, liquidity and market stress factors in play at the time of another CMs default.

Portability is much easier in the US than in the EU. In the past, there were several defaults that were managed by US CCPs and in all cases the portability of client omnibus accounts to other CMs was done successfully. There are a few significant differences between the US and the EU. The first is information, and in particular, client information. US regulations require CMs to provide daily reports (i.e. Customer Gross Margining) about all their clients within an omnibus account. This provides US CCPs with a good insight into CMs' client portfolios, offers them a more detailed view of the CMs' risk profile, and helps them to build a better relationship with CMs. Second, and since net omnibus accounts are not allowed in the US, there is sufficient margin (i.e. gross margin – a margin higher than the net margin requirement) available within the omnibus account to facilitate the porting of positions with collateral to the new CM. This alleviates the need for the new CM to put up margin collateral to fund the porting of client positions.

Another porting hurdle is client consent whereby the EU applies the concept of explicit affirmative consent per individual client for a porting request to be executed. This is particularly problematic for omnibus accounts as it means that in a default situation when time is ticking, porting requires potentially thousands of clients in an account to give explicit consent. This all must be completed within the porting window which is generally not realistic. It's therefore interesting to look at the US where a negative consent mechanism prevails, enabling CCPs (at the point of default) to port client (omnibus) accounts in bulk to one or several CM firms and then subsequently decide with the clients where they want to migrate. It would be worthwhile for the EU to investigate this further. EMIR 3.0 will amend [Article 48\(5\)](#) so that the porting of an omnibus account can take place '[unless all clients object to the transfer](#)'. Although this is a step in the right direction, it's still necessary to enter into a portability agreement with a back-up clearing member upfront. This is very challenging as it will involve all clients in the relevant omnibus account and if no agreement is reached the CM is not obliged to accept the transfer.

Successful porting helps to ensure that the worst possible outcome – forced liquidation – is avoided and clients are able to maintain their hedges and continue to access their portfolios. Portability is also very important from a financial stability perspective as it prevents the CCP from liquidating client positions and collateral during a period of market stress (fire sale). But increasing the likelihood of porting is not easy and it may require a mixture of measures. It's good to see that the EMIR 3.0 proposal is now set to introduce a three-month waiver for back-up CMs to complete their due diligence process (KYC/AML), and that competent authorities can grant back-up CMs a grace period (up to three months) to allow them to comply with additional capital requirements following a transfer of client positions and assets (porting-in). These are important steps, but additional measures are required to make portability easier and faster when it is most needed².

² Alternative options may include: partial porting, the extension of the porting window while clients meet variation margin calls to the CCP directly, the preparation of standardised porting scenarios and processes, or conducting regular tests to assess the readiness of new clients.

Another area that can increase the feasibility of successful porting is when better segregation structures are preferred by market participants. Today there is a preference for net omnibus accounts³ in listed derivatives. However, the likelihood that a client in a net omnibus account (and without a backup CM) will get ported during a default is effectively zero. Apart from that, partial porting (i.e. porting to multiple back-up CMs) is generally not supported in a default situation. This is because in a net omnibus account, there is typically not sufficient collateral available against each client's portfolio of positions. Clients can significantly increase the likelihood of porting when they opt for omnibus gross accounts, or even better, for individual client segregation⁴. But even then, porting is by no means guaranteed.

However, focusing on portability may be misleading. Currently, and as noted above, there is a major disconnect between supply and demand, whereby a small number of CMs must absorb an ever-increasing market. Thus, shifting the focus from portability to clearing access models may be necessary as it could potentially increase the overall clearing capacity. CCPs have developed hybrid models where clients can obtain some form of direct CCP membership with a bank (i.e. sponsor or clearing agent) supporting them for particular services.

Offering a wide variety of clearing models may sound like an attractive option from a client perspective. However, in practice CMs (and clients) cannot be expected to support all the access models available. This is because setting up and maintaining the required infrastructure is burdensome and costly, whilst it is not always clear if there's sufficient market appetite for a specific access model. In the US, a standard access model (referred to as '[legally segregated, operationally commingled](#)', LSOC) is prescribed for OTC derivatives which results in less client choice, while the market benefits from standardisation.

In the European context sponsored clearing models⁵, which are successful in repo clearing markets, have not yet found their way into the derivatives clearing markets. One of the biggest benefits of sponsored clearing is that it consumes significantly less of the CM's capital and could also be helpful as a back-up porting hub (e.g. to move the portfolio of an insolvent CM to a sponsored account). Although such models could be mixed with traditional client clearing models, thus making clearing access more attractive and the market more efficient, clients should prepare for a situation where the 'sponsor' or 'agent' defaults⁶.

³ There are two types of omnibus accounts: net and gross. The positions and collateral of clients in net omnibus accounts are recorded on a net basis and margin calls are calculated by the CCP on this net basis. This means that a client's portfolio of positions held in a net omnibus account is, by definition, under-margined at the point of default. This type of account offers the least protection and is also the least expensive. In contrast, in a gross omnibus account the positions of clients are recorded on a separate (gross, i.e. no-netting between different clients) basis and margin calls are calculated by the CCP on each client portfolio (i.e. netting is allowed within a client portfolio), which means that every client's portfolio of positions is fully margined.

⁴ With individual client segregation, a client's positions, margins and excess margins are segregated and distinguished from the positions and margins of other clients and clearing members. Any excess margin held by an individually segregated client will not be exposed to another client or clearing member's losses recorded in another account (Article 39.6 EMIR).

⁵ A sponsored clearing model transfers some – but not all – the responsibilities of 'traditional' client clearing service providers (e.g. banks, investment firms, clearing brokers) to the buy-side (e.g. pension funds, regulated funds, insurance companies). By doing this, the buy-side is turned into a new category of sponsored clearing participant with its own specific set of rights and obligations. The sponsor typically pays the default fund contribution to cover the portion of the stressed exposure over the initial margin created by the sponsored participant's transactions to the CCP and takes care of the default management.

⁶ Some CCPs require the [appointment of a 'back-up agent' ex ante](#) and the period when a new agent needs to be appointed (to prevent liquidation) may vary between 1-30 days. In the repo market positions are short dated but in the (OTC) derivatives markets positions may not expire for years.

Liquidity, collateral, margin and central bank backstop

Regulatory reforms in the derivatives market have introduced the daily exchange of margin for most derivative exposures. The exchange of margin in the form of high-quality collateral (e.g. cash or government bonds) reduces counterparty credit risk but it also increases liquidity risk as counterparties need to meet margin calls at short notice and may not have sufficient eligible collateral available⁷.

Liquidity risk is unavoidably linked to collateral access and collateral eligibility. During the UK gilt crisis in September 2022 and after an unexpected rise in yields, UK pension funds and asset managers experienced a sudden worsening of their derivative positions, thus triggering significant margin calls. Since insufficient collateral was available and they were unable to generate liquid collateral via the repo market, they were forced to quickly liquidate positions in exchange for cash. To be able to weather future storms, market participants need to maximise their collateral flexibility by having the fullest possible range of assets available and mobilising, allocating/lending and optimising those assets quickly and effectively. If more collateral (with the appropriate haircut) is CCP eligible, it reduces liquidity risk and the need for collateral transformation.

For this reason, liquidity and collateral optimisation structures, including expanding repo capabilities both in tri-party⁸ and cleared repo, are essential. The cleared repo market has added value from a buy-side perspective because it has [proven to be more resilient](#), whereas the [bilateral repo](#) market has not always been very liquid in stress market situations. It's against this background that CCPs have developed sponsored clearing models to facilitate access for buy-side firms to cleared repo markets with the support of a sponsored bank which acts as a sponsoring agent. These models can help address challenges in liquidity management and operational capabilities that buy-side firms have identified as potential barriers to accessing central clearing facilities as well as risk mutualisation at the CCP.

However, although implementing cleared repo and other liquidity services facilitate client needs, they may not be able to generate sufficient cash or eligible collateral in extreme scenarios. This is recognised by the Bank of England which recently announced the development of a [permanent lending facility](#) for key non-bank financial institutions (e.g. insurers, pension funds). Although access to central bank money may not be the right answer during the regular course of business, it can be helpful as an emergency measure, and benefit both market participants and the stability of the financial system as a whole.

From a CCP's perspective, the best way to increase liquidity is to ensure there is a diversity of CMs that behave in different ways. For example, this may include central banks (who could be cash providers for clients with opposite demands) or CMs from different geographic areas, with different accounting rules, and different economic cycles.

On top of that, CCPs have developed measures which can help them mitigate the procyclicality of initial margin (IM) calls, whether through hard or soft targets for maximum IM increases and/or through one

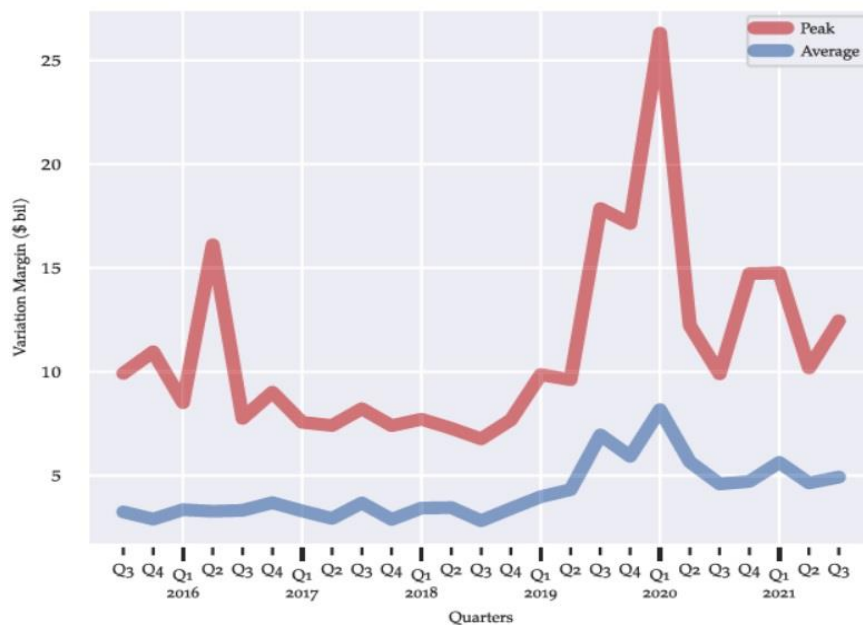
⁷ Although stricter derivative margin requirements have increased the demand for liquid collateral, euro area investment funds, which use derivatives extensively, have been [reducing their liquid asset holdings](#). Between 13 % to 33 % of euro area funds with sizeable derivatives exposures may not have sufficient liquidity buffers to meet the calls under adverse market shocks. This means that they are likely to redeem money market fund (MMF) shares, procyclically sell assets, and draw on credit lines, thus amplifying the market dynamics under stress scenarios.

⁸ A repurchase agreement, or 'repo', is effectively a collateralised loan. The International Capital Market Association defines tri-party repo as a transaction where post-trade processing – collateral selection, payments and deliveries, custody of collateral securities, collateral management and other operations during the transaction's life – is outsourced by the parties to a third-party agent. A tri-party agent can be a custodian bank, an international central securities depository (ICSD) or a national central securities depository (CSD).

or more anti-procyclicality (APC) tools embedded in their model. One strategy to address margin procyclicality is to use a margin floor, which is a minimum level of IM that each clearing member must maintain⁹. Another strategy is to have a margin buffer that will increase IM requirements by a certain fixed amount as calculated by a risk model. During the first quarter of 2020, the amount of collateral posted to CCPs to meet [IM requirements increased by 48 %](#) (or EUR 245 billion), resulting in a big number of margin breaches (i.e. a two-day market move in a contract that exceeds the level of margin held against the position). This highlights the importance for margin levels to be adaptable to market moves and to be predictable, so that clients can anticipate their funding needs¹⁰.

However, most of the concern for clients and CMs does not relate to IM¹¹ but to variation margin (VM) which has to be posted daily in cash¹². VMs are the most prominent procyclicality risk. [Between end-February and mid-March of 2020](#) (i.e. stress caused by Covid-19), the total IM reported by CCPs increased by 40 %, while daily VM calls increased by 460 % (see for example Figure 1 and the VM in LCH Swap Clear¹³).

Figure 1. Variation margin at LCH Swap Clear (Q3 2016 to Q3 2021)



Notes: The red line depicts the CN call paid by/to LCH Swap Clear in each quarter. The blue line depicts the corresponding quarterly average.

Source: King, T., Nesmith, T., Paulson, A. and Prono, T. (2023), '[Central Clearing and Systemic Liquidity Risk](#)', *International Journal for Central Banking*, Vol. 19, No 4, pp. 85-142.

⁹ With respect to margin floors, there's a risk that requesting too much IM in times of less volatility could hurt competition when CCPs in other jurisdictions do not have such margin floors. This can be especially hurtful for global products like foreign exchange. Therefore, margin floors should be considered from a global perspective.

¹⁰ CCPs can do this by providing margin simulation tools to clients, offer adequate advance notice of margin level increases, and refrain (to the extent possible) from *ad hoc* margin calls.

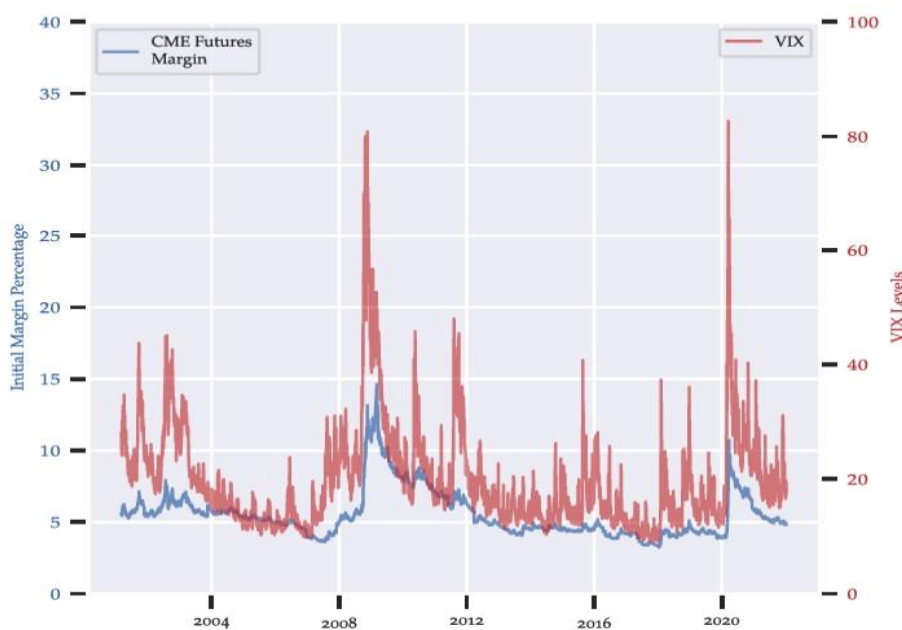
¹¹ A concern for CMs is the validity of the CCP IM models. The constant adjustment of IM levels is what triggers procyclicality issues.

¹² That was the reason that pension funds were granted a temporary clearing exemption until June 2023.

¹³ It is important here to highlight that a significant percentage of the collateral increase in LCH CCPs was derived from [new risk positions](#), rather than additional collateral being called against existing positions. In particular, 67 % of the total margin increase over the most volatile period in the service was due to members repositioning their portfolios to adapt to the changing risk environment, with the remaining 33 % due to data-driven effects (i.e. the automatic introduction of new, volatile market data into the initial margin models, which are Value-at-Risk models based on historic simulation).

By comparison, over the same period, the volatility index (VIX) increased by $\geq 400\%$ (see for example Figure 2 and a comparison between IM and VIX in CME). In addition, during the Covid-19 crisis, [90% of the margin calls](#) were related to VM instead of IM.

Figure 2. IM requirement at CME Futures (2001-2012)



Notes: The blue line depicts IM requirements on an S&P 500 futures contract as a percentage of the contract value. The red line plots the VIX index.

Source: King, T., Nesmith, T., Paulson, A. and Prono, T. (2023), '[Central Clearing and Systemic Liquidity Risk](#)', *International Journal for Central Banking*, Vol. 19, No 4, pp. 85-142.

Technology can play a role and the tokenisation of assets could bring benefits to the market. Tokenising securities on a distributed ledger technology has the potential to reduce some of the costs and complexities in clearing and settlement. For example, making the settlement process more efficient can help move collateral assets quickly from a client's account to a CCP's account, thus removing the transit risk as transfers can be processed almost in real-time. Even though the tokenisation of collateral may be the solution to some of the inefficiencies in settlement processes and margining in derivatives markets, there is still a long way to go, however, until operational, technical and legal challenges are tackled and a widespread embrace of the technology is feasible.

Moving forward

The issues discussed above are complex by their nature and not easy to resolve. They require a consistent and long-term approach while considering the global nature of the derivatives markets. Achieving optimal client access to centralised clearing remains a challenge and will likely require a wide range of measures.

First, more attention is needed regarding the delicate balance between improving financial stability and the need for sufficient clearing capacity. Measures like introducing higher capital requirements for CMs may – in isolation – be beneficial for financial stability. But they may also lead to a further decrease in clearing capacity. This means that instead of increasing financial stability, such a measure may eventually achieve exactly the opposite.

To improve the likelihood of portability, a wide range of measures should be assessed. As mentioned above, the EMIR 3.0 proposal contains some steps in the right direction by introducing temporary waivers of certain regulatory requirements (i.e. KYC/capital), as well as amending the client consent model. Although these measures aim to facilitate timely porting, more needs to be done. Above all, it should be recognised that portability is directly interlinked with the issue of having sufficient CMs and clearing capacity. If that isn't the case, any measures to improve portability will most likely be ineffective.

Finally, the liquidity aspect should be further improved. Although EMIR 3.0 puts more emphasis on expanding eligible collateral as well as (initial) margin predictability, the market may still be surprised by massive (cash variation) margin calls of extreme and unpredictable market events. In these circumstances the option of giving certain market participants access to central banks should be reconsidered as a last resort instead of being a taboo.

EMIR 3.0's main focus was on the centralised supervision of EU CCPs and reducing reliance on third-country CCPs. Neither of these issues appear fully addressed yet and are likely to re-appear as the main political topics dominating discussions about clearing in the next few years.

It is of the utmost importance that the EU keeps working on the issues discussed in this policy brief and that it does not lose sight of the ultimate goal of derivatives clearing – to mitigate counterparty risk, enhance the stability and integrity of financial markets while maintaining and building a healthy and economically viable Capital Markets Union.

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