

PROPOSED SOLUTIONS RELATING TO THE IMPACT OF DERIVATIVES REFORM ON PENSION FUNDS SUPPORTING DOCUMENTATION FREQUENTLY ASKED QUESTIONS

September 2017

This document is a supporting document to our paper, titled: *Proposed solutions relating to the impact of derivatives reform on pension funds* (thereafter called our “main paper”). Please read this in conjunction with that paper.

1. Why do pension funds use derivatives?

For many pension funds, an integral part of their investment approach is to use over-the-counter (OTC) derivatives to manage their financial solvency risk as their liabilities are often long-dated, one-directional and linked to interest rates and/or inflation. Pension funds use these derivatives to reduce the risk of retirees not receiving pension income. Prudent risk management is encouraged by regulators and reduces the burden on pension funds’ corporate (or other) sponsors.

Pension funds also invest in high-quality government bonds to hedge their liabilities. However, the ability to hedge liabilities completely with bonds is limited as the amount of bonds that can be used to match long-dated liabilities is inadequate. Derivatives have the advantage of being available for longer maturities and can also be tailored to more accurately match the dates of pension funds’ liabilities, which is not generally possible with bonds. The efficient nature of derivatives also allows pension funds to invest in other European investments such as European infrastructure which also provides important social benefits.

The derivatives portfolios used by pension funds are typically long-dated and one-directional, reflecting their liabilities. Combined with the liabilities of the pension schemes, the long-dated, one-directional derivatives portfolio of pension funds results in a more real-world risk-neutral position for pension funds.

2. Why is central clearing and the need to post margin in cash challenging for pension funds?

The pension fund derivatives portfolios used to mitigate pension fund risks are typically disproportionately impacted by regulations because of their long-dated and one-directional nature. Central counterparties’ (CCPs) current operational models only permit variation margin (VM) to be posted in cash, while non-cleared derivatives transactions with banks, at least historically, allowed pension funds to post high-quality government bonds, with appropriate haircuts, as VM.

Pension funds are asset rich and often do not have an allocation towards cash, but they do typically have a large allocation to high-quality government bonds, usually matching the currency of their liabilities. Pension funds therefore wish to carry on posting margin in high-quality government bonds that form part of their investment portfolio. Having to post cash instead will have significant implications for pension funds’ investment portfolios, and therefore for European pensioners and the economy, as explained in our main paper.

3. What has been the European derivatives regulatory response to pension funds’ concerns to date?

European policymakers have recognised that pension funds “typically minimise their allocation to cash in order to maximise the efficiency and the return for their policy holders. Hence, requiring such entities to clear OTC derivative contracts centrally would lead to divesting a significant proportion of their assets for cash in order for them to meet the ongoing margin requirements of CCPs. To avoid a likely negative impact of such a requirement on the retirement income of future pensioners, the clearing obligation should not apply to pension schemes until a suitable technical solution for the transfer of non-cash collateral as VM is developed by CCPs to address this problem. Such a technical solution should take into account the special role of pension scheme arrangements and avoid materially adverse effects on pensioners.”¹

Therefore, policymakers provided a transitional provision within the European Market Infrastructure Regulation (EMIR), giving European pension funds a temporary exemption from the requirement to centrally clear derivatives to provide further time to find an alternative solution which would allow pension funds to use high-quality securities, with appropriate haircuts, when posting VM for cleared derivatives. The temporary exemption for European pension funds remains in place until August 2018 and a further three-year extension is currently proposed by the European Commission.

¹ Recital 26. European Market Infrastructure Regulation Level 1 text. REGULATION (EU) No 648/2012 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 4 July 2012 on OTC derivatives, central counterparties and trade repositories found here: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32012R0648&from=EN>

Furthermore, a corresponding exemption was mirrored within the Capital Requirement Regulation (CRR). Under this exemption, banks were not required to apply the Credit Valuation Adjustment (CVA) rules to non-cleared derivatives trades executed with pension funds as long as the EMIR temporary pensions exemption applied. This ensured that pension funds were not penalised with CVA charges that banks would otherwise have had to charge for pension funds trading non-cleared derivatives with them. We are grateful for this CVA exemption as, without this, the pricing differential would have made the cost of using non-cleared derivatives prohibitive for pension funds.

4. Can the repo markets solve the cash margining issue for pension funds?

If CCPs cannot accept high-quality government bonds as VM for OTC derivatives, then one question is whether pension funds can rely on the sale-and-repurchase (repo) markets to transform high-quality government bonds into cash for posting to CCPs.

While the repo markets can be relied upon in normal market conditions and when there are small movements in rates, in stressed market conditions or when there are large movements in rates, the bank repo markets are likely to come under extreme pressure to absorb the level of liquidity required.

The Europe Economics and Bourse Consult report in 2014 sets out that collateral calls from a 100 basis points move in rates would likely exceed the apparent daily liquidity available within the repo markets: *"It can be seen that the total VM requirement for such a move would exceed the apparent daily capacity of the UK gilt repo markets and would likely exceed the relevant parts of the European government bond repo market – i.e. primarily that in German bunds"*.²

Since 2014, when the above report was published, the repo markets have come under significant pressure. More recently, the bid-offer spread for high-quality government bonds has widened substantially, and banks' appetite for providing repo services has generally reduced. This is also supported by various reports published by the International Capital Market Association (ICMA). The ICMA estimates that where the historical bid-offer spreads of short-dated liquid instruments were in the region of 5bp (0.05%) or less, the break-even rate to make the repo business profitable for banks following the introduction of leverage ratio rules is likely to range from 40bp (0.40%) up to potentially 75bp (0.75%).³ We have privately heard from some banks that they expected this figure to be closer to 100bps (1%) or higher if they were to aim for a reasonable return on capital, based purely on the impact from the leverage ratio rules.⁴ Furthermore, the ICMA European Repo Market Survey indicates the repo market has reduced by c.11% from €6,076bn in June 2013 to €5,379bn in June 2016.⁵

Banks indicated that once the leverage ratio, NSFR, liquidity coverage ratio and other bank capital rules are fully implemented by all banks repos will become unprofitable for banks as a traded product. This is likely to result in further widening of the bid-offer spread for repos, and/or a further reduction in appetite to support the repo markets.

5. Why has a solution not been found and what has the industry been doing about this?

During the last few years the pensions industry has engaged extensively with CCPs, banks and other market participants on this cash VM issue, exploring various solutions. However, a robust solution which allows pension funds to post high-quality government bonds as VM that can be relied upon in stressed market conditions has not been developed.

There are a number of reasons for this. Firstly, technically it is an extremely difficult problem to solve, and we believe a solution requires extensive effort and collaboration from a range of stakeholders including both the industry and policymakers.

Secondly, the delay in the European timetable for mandatory clearing in general has meant that banks and CCPs have been focused on preparing for the important mandatory clearing requirements for the market as a whole, and the extra time that was to be provided to solve the pension fund issue after mandated clearing of the rest of the market did not materialise.

Over the last few years, we have invested significant time and resources to explore two major options, outlined below:

- Option 1: Passing bonds as VM on cleared OTC derivatives

This is strongly opposed by many of the major CCPs and questioned by other market participants on the basis that it would force CCPs to take on new risks that they are unable to manage. We expand on this further in question 6.

- Option 2: Collateral transformation initiatives

Given the lack of success of the above option to date, the pension industry's efforts have been largely focused on developing further repo market initiatives to help expand the access that pension funds have to the repo markets. While much progress has been made in relation to this, we do not believe it is something that we can rely upon in stressed market conditions as there is no guarantee

² Page 66. Baseline report on solutions for the posting of non-cash collateral to central counterparties by pension scheme arrangements: a report for the European Commission prepared by Europe Economics and Bourse Consult.

³ Page 11. Perspectives from the eye of the storm: The current state and future evolution of the European repo market published by the International Capital Market Association in November 2015 can be found on the link below:
<http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/short-term-markets/Repo-Markets/icma-european-repo-market-reports-and-white-papers/The-current-state-and-future-evolution-of-the-European-repo-market/>

⁴ A simple example calculation deriving this is as follows:

Assume repo notional of €100m, bid-offer of 100bps would generate €1m revenue pa.

Assuming a 55% cost-to-income ratio for a banks, and 35% tax rate, net income would be c. €0.30m (=€1m x (100%-55%) x (100%-35%))

Assuming a leverage ratio of 4% (could be up to 5% for some banks), capital required would be €4m (=€100m x 4%)

This results in a return on capital of c.7.5% (€0.3m/€4m).

Banks prefer to reach a return on capital of around 10%, which would result in bid-offers being closer to 150bp.

⁵ Page 7. European Repo Market Survey, Number 31 – Conducted June 2016 and published September 2016 by the International Capital Market Association can be found here:

<http://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/repo-and-collateral-markets/ercc-publications/repo-market-surveys/>

that a provider of cash will be available when needed. These initiatives would be useful only in normal market conditions. We expand on the repo market initiatives further in question 7.

6. What are the challenges of passing bonds as VM on cleared OTC derivatives?

VM works as a “pass-through”, meaning that unlike initial margin (IM) that stays at the CCP, VM does not stay at the CCP but is passed through from a counterparty that has a negative mark-to-market (MTM) to one that has a positive MTM. It is operationally easier to pass cash through the system than bonds.

We discuss below some of the options that the industry has explored to try to pass bonds as VM through the system and some of the challenges. We also urge interested parties to refer to the Europe Economics and Bourse Consultant report for a more exhaustive list of options, including an independent analysis of them and the associated challenges.⁶

It is important to note that under all these options, when bonds are posted by pension funds, the equivalent bonds must be returned back to the pension funds. This is because bonds are often carefully selected to match pension funds’ liabilities and can form an important part of a liability-matching portfolio. If a different bond is returned this can affect a pension fund’s hedging profile and introduce new unquantifiable risks for the pension fund.

There are four main options that have been considered as a potential way to accept bonds as VM by CCPs:

1. CCPs transform bonds into cash (and vice versa)
2. Bonds are passed as VM through the system to all parties that are owed VM
3. Bonds are passed through by security interest
4. IM top-up model

Below, we discuss these in more detail, including the challenges faced by CCPs. These points are based on our understanding, and we encourage policymakers to engage directly with CCPs on these issues.

We believe it is fair to say that there is general resistance by CCPs to develop the above models based on the challenges that are set out below. We remain open to discussions to those that remain engaged in this topic. For a model to be considered a viable solution, we would need to ensure there is enough support and liquidity within the market for the solution and the product created, including from banks as both liquidity providers (or executing brokers) and clearing members.

CCPs transform bonds into cash (and vice versa)

Under this model, a CCP receives bonds as VM from pension funds, and it uses the normal marketplace to transform the bonds into cash, either by using the repo markets or by selling the bonds to generate the cash. This would introduce new liquidity risks for the CCP as well as operational challenges, including timing issues, to ensure the collateral is transformed so that VM calls are met in a timely manner.

In order to manage the liquidity risk, we believe CCPs would require access to central banks as a provider of liquidity, at least in extreme market circumstances, to ensure that the model would work in all market circumstances. Some CCPs do have limited central bank access for intraday liquidity, and whether current access can be used to support such a process should be investigated.

The biggest challenge may be the potential change in the role of the CCP. The CCP would become the principal to the relevant transactions and therefore the risk borne by the CCP would increase. CCPs can already engage in repo, or collateral transformation, activities to manage their treasury finance activities, but an extension of this role to cover VM payments would introduce new risks to CCPs, and we understand this may not be welcomed by many CCPs or their supervisors.

Bonds are passed as VM through the system to all parties that are owed VM

Under this model, CCPs would receive bonds as VM from those with negative MTM and pass bonds as VM to those with positive MTM. We expect this to create at least the following challenges:

- Significant changes to CCPs’ operational frameworks would be required. Connectivity to all parties involved, including custodians and central securities depository (CSDs), would need to be significantly modified.
- CCPs would need to maintain records of bonds passed through the system to track the end location of each bond. This would be necessary to ensure that the equivalent bonds are returned to the parties that originally posted the bonds. It is not certain whether this would be practically achievable in reality, especially within the short timeframes required for VM movements.
- The market would consider OTC derivatives collateralised with bond VM to be a different product to OTC derivatives collateralised with cash VM. This would create a two-tier market with differential pricing between the products. The strong desire would be for banks to post and receive VM in cash. This, combined with the lack of recognition of bonds as VM in the Basel III rules, is likely to negatively impact liquidity of such a product, resulting in wider trading spreads. We question whether banks would be willing to support such a product by providing sufficient liquidity and competitive pricing.
- Valuing such derivatives contracts may be complex, as the collateral format is an important driver of OTC derivatives valuations.
- Securities can only be exchanged in transferable units and are subject to MTM volatility themselves, adding another layer of complexity.

⁶ Baseline report on solutions for the posting of non-cash collateral to central counterparties by pension scheme arrangements: a report for the European Commission prepared by Europe Economics and Bourse Consult can be found here: http://ec.europa.eu/finance/financial-markets/docs/derivatives/150203-external-study_en.pdf

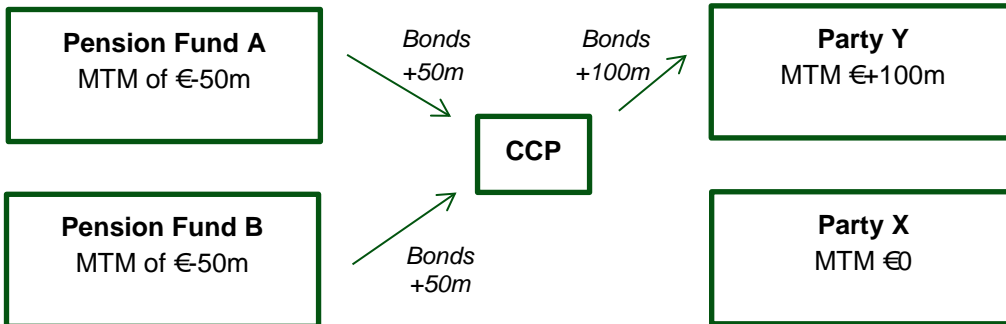
- Finally, and perhaps most importantly, there is no one-to-one relationship of VM movements between counterparties because each counterparty maintains only a collapsed net position with the CCP. This makes it very challenging for the counterparty that posted the bonds to receive them back once the MTM reverses. This is best illustrated with an example below:

Example on day 1:

In this simplified example, we assume there are only four counterparties to the CCP: Pension Fund A (PF A), Pension Fund B (PF B), Party X and Party Y. (In reality the pension funds would be intermediated by clearing members, but for simplicity we do not include clearing members in this illustration.)

In this example the parties are assumed to have the following MTM on their OTC derivatives positions on day 1: PF A of -€50m, PF B of -€50m, Party Y of €100m, and Party X of €0. The net MTM of the CCP is zero as expected.

PF A and B each post €50m of bonds to the CCP, Party Y receives €100m of bonds, Party X receives nothing.

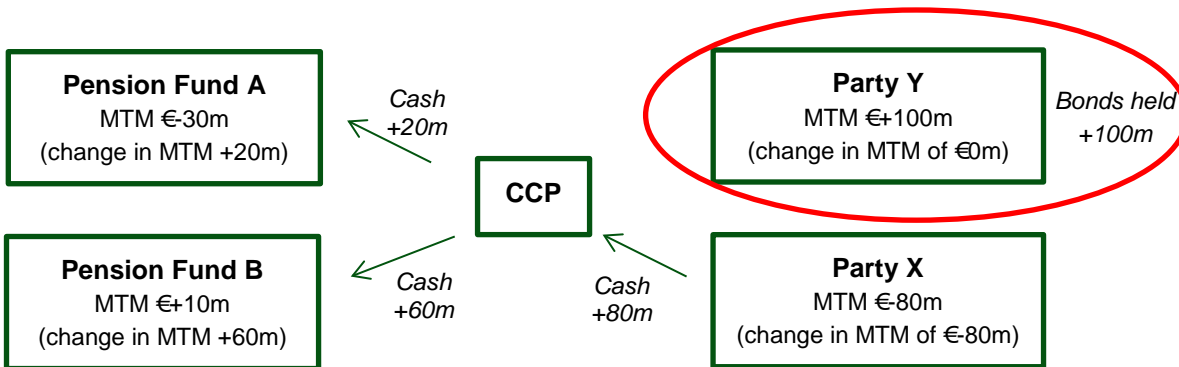


Example on day 2:

On day 2, it is assumed that the parties have the following cumulative MTM (or a change in MTM) on their OTC derivatives positions: PF A of €-30m (or a change of €+20m), PF B of €10m (or a change of €+60m), Party Y of €+100m (or a change of €0m), and Party X of €-80m (or a change of €-80m). The net MTM of the CCP is zero as expected.

Party X posts €80m in cash to the CCP to reflect the change in MTM. The CCP then posts €20m cash to PF A and €60m cash to PF B.

Although PF A and B have had a reversal in MTM, the bonds that they originally posted reside with Party Y, which had no MTM move. Therefore the bonds remain with Party Y and are not returned to PF A or B.



This illustrates an important economic challenge of posting bonds as VM through the system: they may not be returned in future.

Bonds are passed through by security interest

Under this model, the pension funds would post bonds to the CCP. The bonds would be held with the CCP and counterparties that are owed VM would receive a security interest over the bonds, rather than being delivered the bonds outright.

Most, if not all of the challenges mentioned in the above option “Pass bonds as VM through the system to all parties that are owed VM”, are also likely to apply under this model. In particular, the issue concerning the lack of a one-to-one relationship of VM movements between the counterparties (illustrated in the above example) would remain, meaning that a bond that is posted may not be returned to the original counterparty upon a reversal of MTM.

Furthermore, the legal applicability of this option is in question. Security interest does not appear to be legally enforceable in all jurisdictions. It could potentially lead to uncertainty in the event that a counterparty defaults.

Finally, parties that receive security interest in bonds cannot re-use it outside of the CCP system and could not transform that interest into cash easily to be used for other purposes. This is likely to negatively impact the uptake of this product by banks, and therefore negatively impact liquidity, pricing, valuation and trading spreads.

IM top-up model

Under this model, VM is not posted or passed through the system. Instead, if a counterparty has negative MTM, it will post bonds to the CCP. The CCP will use these bonds to top-up the IM of the counterparty to compensate for the MTM that it was owed. On the other hand, a counterparty that has a positive MTM and where it is owed VM by the CCP does not receive any VM. It can however recall the IM it has posted, subject to a floor.

If large swings in MTM took place, and more than the total IM that was posted by a given counterparty, and this counterparty has a positive MTM, it would not be compensated fully for the move in MTM because the counterparty cannot recall more than the IM posted to the CCP. Instead, the CCP would make a record of the amount owed by it to the counterparty, which could then be offset against future MTM calls in the opposite direction from that counterparty. This would increase the credit risk that counterparties have to the CCPs, which would likely have a negative impact on bank capital costs and willingness of banks to support such a product.

While there are some limited options products that adopt this model, most OTC derivative products do not adopt this model because of the lack of ability of the counterparties to be fully compensated for MTM moves. This IM top-up model would introduce a significant change to the standard OTC derivatives product, and likely affect uptake by banks, therefore negatively affecting liquidity, pricing, valuation and trading spreads.

The advantage of this model is that because VM is not passed through, it avoids some of the challenges mentioned above in the other models. However there are still significant challenges to this model.

7. What are the collateral transformation initiatives that have been pursued by the industry?

Much focus has been given by pension funds to develop repo market initiatives although these are still very much in the infancy and need more time to see whether they really deliver. The hope is that these initiatives would create some additional repo capacity for pension funds, which would be helpful in normal market circumstances. However it is not something we can rely on in stressed market conditions as there is no guarantee that a cash provider will be there when needed.

Furthermore, any extra capacity created is likely to be limited when compared to the level of collateral calls that may be needed for large market moves. Finally, any extra capacity created also needs to be balanced against any potential erosion of capacity resulting from the negative pressures that the repo market is currently under (as explained in question 4).

That being said, we set out below some of the repo market initiatives that the pension fund industry has been either working on or supporting.

Trading repo transactions directly with CCP

CCP receives and holds IM from market participants as part of its normal CCP functions. Unlike VM, IM is not a pass-through and stays at the CCP. Where CCPs receive IM in the form of cash from counterparties, they would need to invest this cash in some financial instrument. As such, CCPs often use the repo markets to invest this cash as part of their normal treasury financing operations. We have worked with CCPs extensively, including working with them to have their rule-book changed to ensure that they can trade repo transactions directly with pension funds and therefore create an additional source of cash for pension funds.

This introduces some extra repo capacity for pension funds rather than solely relying on trading with bank counterparties. However the capacity released is quite limited as CCPs rightly wish to diversify their counterparty base and have only a finite amount of cash.

Non-bank repo

We have already backed certain initiatives and continue to support other initiatives that aim to give us more access to trade with non-bank cash providers, either directly or via peer-to-peer platforms.

In reality there are certain challenges to overcome for this to be successful. Most non-banks are not set up to trade repos: they do not have the appropriate operational or collateral management infrastructure, or appropriate credit checking infrastructure, or readily accessible legal resource to agree Global Master Repurchase Agreement (GMRA) legal documents required to trade repo transactions.

These are some of the issues that we hope that future evolutions of peer-to-peer platforms try to address but they are unlikely to resolve all such issues. For example, significant infrastructure overhaul is likely to be needed at custodian banks too, being holders of assets for many non-banks, for these non-bank repo models to be successful.

At present many of these peer-to-peer repo initiatives are very much in their infancy, and even those that have launched have extremely low trade volumes passing through them.

Cleared repos

The interbank repo market is largely a cleared market and is more liquid than the bilateral repo market that pension funds typically engage with. Banks are more willing to trade cleared repos than bilateral repos as they would have the ability to net their position with a single counterparty, a CCP. This makes cleared repos more capital and balance-sheet efficient compared to bilateral repos for banks.

We have been engaging with CCPs and banks as clearing members (or sponsored clearing members) to develop repo clearing models that would allow pension funds to clear their repo transactions with CCPs. Banks should in theory be more willing to trade repos with pension funds if they know that it will be cleared. The hope is that this creates some additional repo capacity for pension funds.

However this is still also in its infancy with limited number of banks willing to provide clearing member services. We hope though that this would change over time and one advantage is that pension fund stakeholders can take advantage of the infrastructure build that we have already completed for OTC derivatives clearing to build the cleared repo infrastructure.

8. Can a direct membership approach solve the cash VM issue?

By "direct membership clearing models" we mean clearing models that allow pension funds (or other clients) to become a direct clearing member (CM) of a CCP without requiring a bank to provide clearing member services.

There are some quasi-versions of this model that are being created within the market called the “direct access clearing model” where a clearing member still has a role to play, but it is a reduced role and is often called a sponsored clearing member. The direct access clearing model allows for a direct contractual relationship between the CCP and pension fund client but the sponsored clearing member still has an important role to play as a service provider, including facilitating margin payments, contributing towards the CCP default fund and providing default management services. While this model incorporates some improvements when compared with the standard client clearing model, it still relies on a bank as a service provider, and therefore the ability to port sponsored clearing members is still an important feature to make this model successful.

In contrast, what we mean by the direct membership clearing model is one where pension funds (or other clients) are less vulnerable to CM termination rights or default risk, although banks could still provide other clearing services such as facilitating margin payments, or providing operational or default management support.

By CM termination rights, we refer to the fact that typically, CM agreements currently enable a CM to terminate the agreements at their sole discretion. If exercised this would force clients to port the position to a new CM otherwise the positions could be liquidated. This termination rights risk and default risk to the sponsored CM would still exist within the direct access clearing model.

While we support the development of these direct membership clearing models to address some risk and cost concerns, it is crucial to note that this is not a solution for our priority cash margin issue. Direct membership to CCPs does not eliminate the need for VM to be posted as cash.

It must be noted that direct membership or direct access clearing models are still very much in their infancy. They still need more work to fully address some of the risk and cost concerns of client clearing. However, we believe it is a positive sign that the industry is engaged in these discussions.

The below provides a broad summary of the issues that direct membership and direct access clearing models hope to address versus not. While the models are still not finalised it is important to note these issues will need to be analysed for each individual model once fully developed.

Issues	What does a <u>direct membership</u> clearing model hope to address versus not?	What does a <u>direct access</u> clearing model hope to address versus not?
• Cash VM issue	• No change, VM must still be posted in cash	• No change, VM must still be posted in cash
• Credit risk to CM banks	• Hopes to reduce or eliminate risk	• Hopes to reduce risk
• Clearing fees	• Aims to reduce clearing fees; although we do not know yet if this will materialise in reality	• Aims to reduce clearing fees; although we do not know yet if this will materialise in reality
• Transit risk	• Reducing transit risk, collateral will be exchanged directly with the CCP without going through CMs	• Reducing transit risk, collateral will be exchanged directly with the CCP without going through CMs
• Porting risk	• Issue of porting eliminated upon CM default or CM termination rights but potential reliance on external service providers depending on the model	• CM default and CM termination right risk still exists. Therefore porting of sponsored CM is still important, but we hope the chances of finding a new sponsored CM may be easier than a regular CM, though this has not been tested. We would hope that future evolutions of the model could offer a longer porting period to allow for a greater chance of porting of a sponsored CM to occur, although the current models being discussed do not provide this yet

9. Comparison of the cleared and non-cleared markets

Non-cleared transactions are bilaterally agreed and documented under ISDA agreements and collateral terms are agreed under the ISDA Credit Support Annex (CSA) to protect counterparties’ credit risk.

Below is an overview of the differences between the cleared and non-cleared derivatives regimes.

	Non-cleared	Cleared
Counterparty	The counterparty to a trade will be the one with whom the trade is executed and will remain the same until the trade matures or the trade is novated to another counterparty.	The trade is executed with an execution broker. Once the trade is cleared the CM is the counterparty to the trade.
Termination rights	The counterparty usually cannot terminate the transactions without reason, and so transactions usually remain for life.	CM will usually retain the right to terminate the clearing agreement at sole discretion upon giving some notice. If terminated, clients must find a new CM to port positions or risk positions being liquidated.

	Non-cleared	Cleared
Initial margin	<p>Currently initial margin (IM), normally called Independent Amounts, may or may not apply depending on bilateral agreements.</p> <p>Going forward, posting IM is required by EMIR and other international non-cleared margin rules. Within EMIR all entities with over €8bn gross notional of non-cleared derivatives will eventually be subject to IM and this IM should be posted to a third-party entity</p>	IM applies as per CCP rules and is usually held by CCPs.
Initial margin format	<p>Usually a broad array of instruments permitted by regulation including cash, government bonds, corporate bonds, equities and gold.</p> <p>However, the actual format of collateral (and haircuts) will be limited to those that are mutually agreed between counterparties and detailed within the CSA.</p>	Set by the CCP and usually includes cash and high-quality government bonds with haircuts as a minimum.
Variation margin frequency	<p>Usually daily.</p> <p>Mandated VM requirements apply from 1 March 2017 as a result of EMIR and other international non-cleared margin rules.</p>	Daily and intra-day VM calls take place. Where a CM is used, the CM mostly takes care of the intra-day calls.
Variation margin eligibility	<p>Usually in high-quality government bonds or cash, as agreed in the Credit Support Annex (CSA) of ISDA agreements, and meeting collateral jurisdictional rules applicable from 1 March 2017.</p> <p>However there are challenges in agreeing non-cash VM with banks due to bank capital rules as set out in our main paper.</p>	<p>Cash only.</p> <p>However, any intra-day margin calls can be met with securities, but will need to be replaced with cash as part of the regular VM process next day.</p>
Variation margin contractual rights	<p>Under an English law CSA, collateral is transferred on a full-title transfer basis, and under a New York law CSA, the collateral is transferred subject to a security interest but with an explicit right to re-use collateral.⁷</p> <p>The party posting collateral retains the right to substitute alternative collateral of equivalent quality and value (subject to the consent of the party holding the collateral), thus preserving, in the case of a pension fund, the ability to manage bond assets within the portfolio and retain the economic benefit. Coupons arising on bonds are returned to the beneficial owner.</p> <p>If cash is posted as VM then interest on cash is paid at the agreed rate.</p>	<p>Under an English law CSA, collateral is transferred on a full-title transfer basis.</p> <p>Interest on cash VM is paid at a rate set by the CCP.</p>
Variation margin timing	T+1 or T+2 depending on jurisdiction (i.e. valuation on close of business on day T, collateral call takes place on T+1, and collateral move takes place T+1 or T+2 depending on jurisdictional rules).	T+1 (i.e. valuation on close of business on day T, collateral call and collateral moves take place takes place T+1).
Minimum Transfer Amount	EMIR rules set it to be €500,000 or equivalent between counterparties.	Zero.
Valuation agent	Agreed between counterparties.	CCP.
Disputes	Any disputes between counterparties are agreed in a timely manner and large disputes are reported to regulator in accordance with jurisdictional rules.	Collateral disputes generally not possible as the CCP is the sole valuation agent.

10. Can securities margin be as good as cash margin?

We believe there are some misconceptions around the use of securities as margin. For several reasons, we believe high-quality government bond margin, with appropriate haircuts, is at least equal to, if not preferable to, the use of cash as margin, for the following reasons:

High-quality government bond margin offers less credit risk compared to cash

⁷ the ISDA Credit Support Annex (CSA) used in English law and New York law are the most widely used documents for collateralising non cleared derivatives

Cash ultimately needs to be held directly with a bank or in financial instruments such as bank certificates of deposit, bank floating rate notes, and bank or commercial paper, all which introduce a non-sovereign credit risk that can become significant under stressed market conditions. In contrast, government bonds provide a direct sovereign covenant. Thus we believe there is less credit risk attached to government bonds deemed by the market to be high quality than to cash held in short-term instruments. This explains why government bonds deemed by the market to be high quality are currently accepted as initial margin (IM), allowing pension funds – which hold government bonds of varying maturities to manage the profile of their liabilities – to post these bonds as initial margin with appropriate haircuts applied to reflect duration risk.

Securities margin does not possess greater re-use risk than cash margin

We understand that there may be a concern that securities margin can be re-hypothecated and re-used by counterparties. However, this is equally true for cash, which can even more easily be transferred and re-used by the receiver of cash margin.

Under the ISDA Credit Support Annex (CSA) used in English law and New York law – the two most widely used documents for collateralising non-cleared swaps – cash and securities collateral receive the same treatment and may be re-used by the receiver. Under both laws the receiver must return the equivalent, but not necessarily the same, collateral. The timescales are also the same under both laws.

Securities margin has the same contractual status legally as cash margin

Paragraph 25 of the Basel III leverage ratio rules⁸ set out that VM exchanged can be considered to be a form of pre-settlement payment if it is exchanged in cash and meets certain other conditions. We believe there are no legal reasons as to why high-quality government bonds, with appropriate haircuts, could not also have been included in this. Contractually, both cash and securities margin have the same legal status.

The movement of collateral under both English law and New York law CSAs can be considered as being separate to the transaction cash flows. CSA collateral posted or received does not change the outstanding maturity of the OTC derivatives contracts and does not settle or cancel any transaction cash flows. Upon a close-out or termination, the value of the collateral under the CSA would be netted against the value of the transaction cash flows. This treatment is the same regardless of whether the collateral posted under the CSA is cash or securities.

Preferential treatment for cash over securities VM is likely to increase chances of liquidity crisis

The push for cash VM over securities VM will significantly increase the demand for cash, especially in times of stress when large VM calls can be expected. This is likely to significantly increase liquidity risk and exacerbate downward pressure on falling asset prices as market participants sell physical assets in order to meet cash VM calls. This would therefore increase pro-cyclicality risk and reduce financial stability.

We believe that giving high-quality securities, with appropriate haircuts, the same treatment as cash in allowing it to offset replacement cost should help to reduce the chances of any future liquidity crisis in stressed market conditions.

11. If pension funds are clearing already, is there really a problem?

The vast majority of European pension funds are not clearing yet. A small minority have started to clear some derivatives, usually in small volumes. This is not a sign that the cash margin issue for pension fund has been resolved or has become less significant. Several reasons can be identified why pension funds voluntarily started to clear derivatives:

Concerns over liquidity of non-cleared derivatives

Falling liquidity within the non-cleared derivatives market is a concern to pension funds. As per the G20 policymakers' intention, bank capital costs incentivise banks to trade cleared over non-cleared derivative transactions. Secondly, in an environment in which pension funds are pressurised to post VM in cash for non-cleared trades (see our main paper for more details), the impact of moving to clearing becomes less significant.

Exemption provided to pension funds is temporary

The imminent threat of mandatory clearing, given the exemption provided to pension funds has only ever been temporary, has led some pension funds to start to clear voluntarily.

Clearing capacity available to one-directional clients

Some pension funds believe that an early move into clearing would be the only way to secure clearing member relationships to ensure that they have access to a liquid derivatives market.

12. Why is the cash VM issue not a problem for US pension funds?

The structure of the US pensions market is different to the European pensions market. Unlike European pension schemes, US pension schemes typically use corporate bonds rather than swaps as their primary asset for managing financial solvency, for several reasons:

- US corporate defined benefit pension funds' liabilities are typically not inflation-linked. This has the effect of reducing the average duration of the US pension liabilities (the average term of the liabilities from a risk perspective) to about 10 years.
- The US corporate bond market is broader and deeper, and has greater diversification at long maturities, compared to the European corporate bond market. As a result, the US corporate bond market provides a sufficient maturity profile for hedging US pension funds.
- US pension funds' governance structures typically mean that the corporate sponsor drives hedging decisions, with the key decision maker, often being the Group Treasurer or CFO of the sponsor. The sponsor's goal in driving the hedging decisions is to minimise

⁸ See paragraphs 25 of "Revisions to the Basel III leverage ratio framework - consultative document": <http://www.bis.org/bcbs/publ/d365.htm>

the balance sheet impact of their pension fund liabilities. The balance sheet impact is calculated using the US GAAP accounting standard, which broadly discounts liabilities using an AA-rated corporate bond yield. Therefore a portfolio of AA-rated corporate bonds forms the natural hedging asset for US pension schemes to manage their financial solvency.

European pension funds face very different circumstances. European pension funds generally have liabilities that are longer in duration (on average of about 20 years, but they can extend to 50 years), and European corporate bond maturities rarely exceed 10 years. Furthermore, the discounting basis used for calculating the value of European pension funds' liabilities are more closely linked to swap rates rather than corporate bond yields.

For these reasons, the market has developed very differently in the US and Europe. US pension funds predominantly use corporate bonds, and not swaps, to manage their financial solvency. It must also be said that the European pensions market even within the European Union varies from member state to member state.

13. Is there anything we can learn from the US approach to providing liquidity to support the economy?

The Federal Reserve discovered during the financial crisis of 2007 to 2009 that a micro-prudential focus did not adequately identify risks across and between markets and institutions. As a result, there has been a shift towards a macro-prudential supervisory approach in the US.

This was evidenced during the aforementioned financial crisis, when the Federal Reserve used its powers under the Federal Reserve Act section 13(3), enacted in 1932, to support and protect the US economy from systemic financial risks. Under this Act the Federal Reserve has the authority to provide liquidity to not only depository institutions, but also non-depository institutions in "unusual and exigent circumstances". This illustrates that the Federal Reserve has not only the authority to support the system as a whole including non-banks, but that it is also willing to use the powers it has if indeed it believes it is needed to protect the US economy from a systemic risk.

We support central banks expanding their reach to non-banks in a crisis to maintain financial stability and protect the real economy. We believe that protecting pensioners is an important component of this, especially in a circumstance where they are forced to take on new liquidity risks that they cannot manage as a by-product of regulatory reform and CCP operational models.

Finally, we note that the Federal Reserve recognised CCPs as systemically important financial market utilities. As a result, it could be argued that this is likely to increase the chance that CCPs may receive central bank liquidity in times of crises, as a last resort, in order to protect the real economy and financial stability.

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