



Joint response to ESMA consultation on central clearing solutions for pension scheme arrangements

15 June 2020

1. On Section 4.1: Why pension funds use derivatives.

Q1: Do you agree with the description made of the portfolios of EU pension funds as well as their use of derivatives? In particular, do you agree that PSAs use derivatives to build synthetic long-dated positions in order to overcome the availability of suitable sovereign or corporate bonds alternatives? Please elaborate on the reasons for your answer.

In general, we agree with this description. As an integral part of their investment approach, many pension funds use 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 are substantially invested in assets and the return on these assets must be maximised to meet future pension liabilities (pensioners' retirement income). They typically invest in high-quality government bonds to hedge their liability risks, but their ability to hedge such risks completely with these 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 match the dates of pension funds' liabilities more accurately, which is not generally possible with bonds. Derivatives can often also be the best matching asset for pension fund liabilities that are discounted using swap rates.

As stated in paragraph 19 of the consultation, the low interest rate environment is challenging. However, pension funds resort to liability-driven investment (LDI) strategies mainly to manage their financial solvency risk. They need to ensure that their assets' value increases at least in line with any increase in liabilities to be able to pay pensioners' retirement income.

Regarding paragraph 23, the counterparty credit risk posed by pension funds' derivative portfolios is limited. The aggregate derivatives exposure of pension fund portfolios itself does not raise significant concerns from a systemic risk point of view: although the derivatives portfolios of pension funds are typically long-dated and one-directional, they are generally held to reflect and offset their liabilities resulting in a risk-neutral position overall. Typically, pension funds also collateralise their derivatives portfolios daily. We provide further reasons for pension fund derivative portfolios not presenting systemic risk in our answer to question 3, below.

Pension funds can post margin on their derivatives transactions using high-quality government bonds without disturbing their asset allocation and increasing their financial solvency risk. Since regulatory reform, the shift to requiring pension funds to post cash variation margin (VM) in a short timeframe introduces the potential for increased liquidity risk.

Q2: Do you have any data with respect to the structure of PSAs' portfolios? In particular regarding the duration gap which derivative strategies are designed to address?

Figure 1 shows an example liability profile for an Irish pension fund with liabilities that extend to circa 50 years. In contrast, Figure 2 shows that the availability of European investment grade (IG) government and corporate bonds decline rapidly from about 10 years of maturity. Derivatives can be originated to hedge longer-duration liabilities as necessary.

However, the use of derivatives versus bonds goes beyond closing the duration gap. Many European pension funds' liabilities are discounted at swap rates, meaning it makes sense to hedge those liabilities using swaps rather than other instruments. For example, in Denmark, pension fund liabilities are discounted by the EIOPA swap curve. In the Netherlands, liabilities are discounted using market swap rates for the first 20 years, thereafter Dutch pension funds increasingly use a historical ultimate forward rate, which is lower than the ultimate forward rate used in the EIOPA swap curve. In Ireland, pension fund liabilities are also increasingly discounted using swaps.

Figure 1: Example pension fund liability profile¹

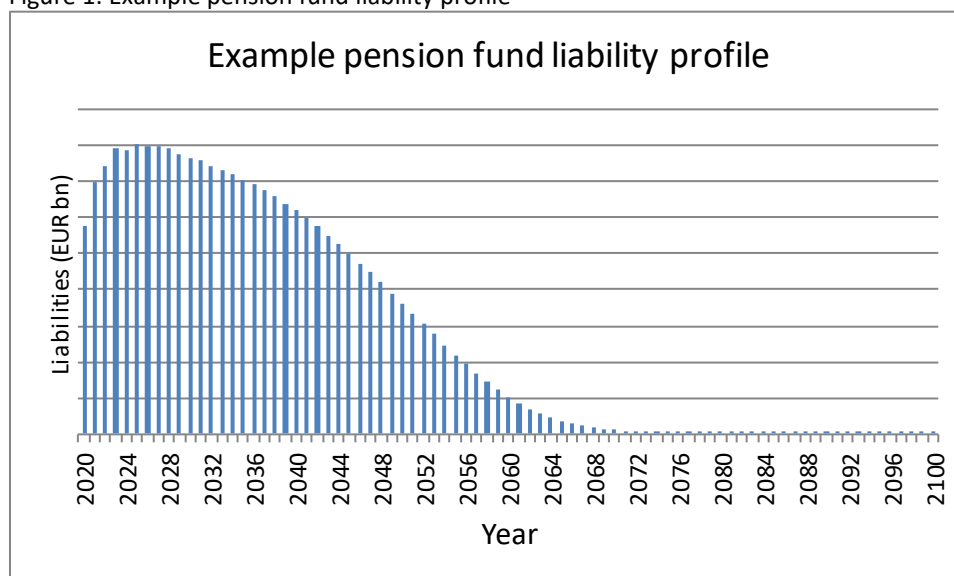
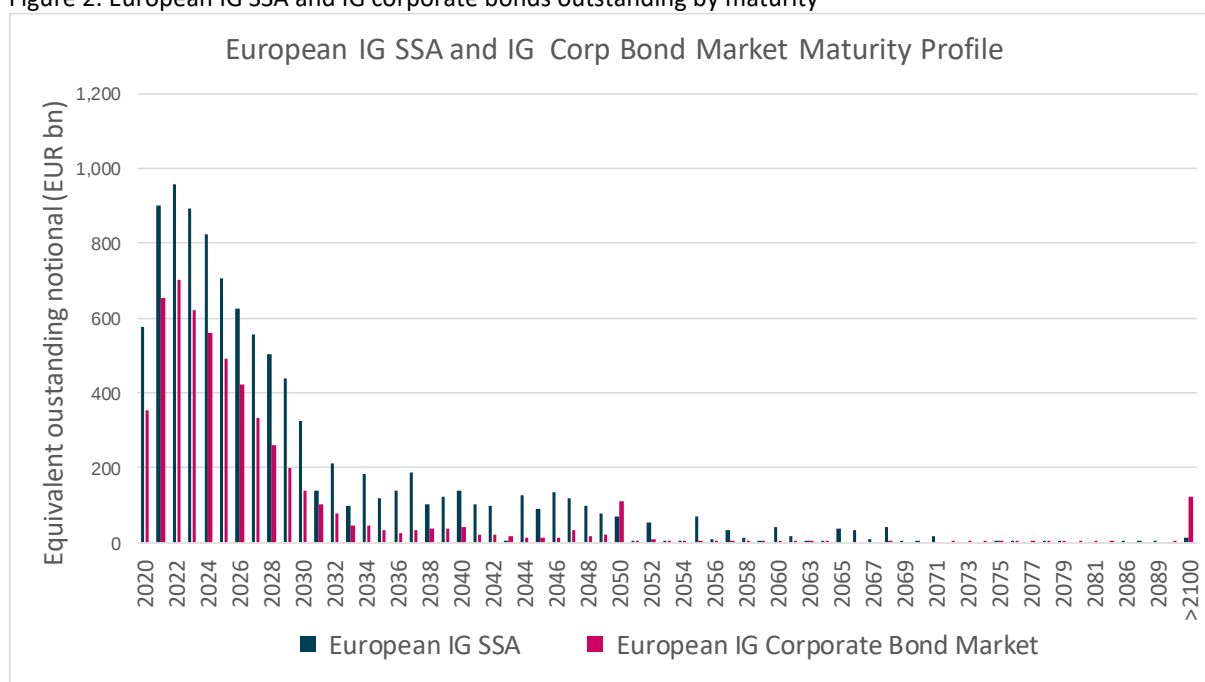


Figure 2: European IG SSA and IG corporate bonds outstanding by maturity²



¹ Source: Insight Investment. Example Irish pension fund liability profile.

² Source: Insight and ICMA analysis, Bloomberg data. Shows (i) Publicly listed IG European sovereign, supranational and government agency (SSA) bonds outstanding by maturity, and (ii) European IG corporate bond outstanding by maturity.

Q3: Do you have any data on the volume and nature of the activity of PSAs in cleared and non-cleared OTC derivatives markets, within each asset class, and any related systemic risk they might pose to the financial system? What portion of non-cleared derivatives would be replaceable by cleared products if the impediments to clearing were removed?

We understand that ESMA has access to information on the volume of the activity of pension funds in cleared and non-cleared OTC derivatives markets, via the trade repositories.

We do not believe that the volume and activity of the derivatives portfolios of pension funds poses systemic risk, as set out below. However, we believe the push towards using cash VM, both in the cleared and non-cleared markets, could increase liquidity risk, potentially leading to systemic risk within the financial system.

As all market participants – not just pension funds – move to meet VM calls in cash, the demand for cash would be likely to increase in stressed conditions (when VM calls are expected to be at their largest). This could in turn result in the forced sale of physical assets to meet liquidity needs and exacerbate downward pressure on falling asset prices. This would likely increase pro-cyclicality and systemic risks and reduce financial stability, perhaps substantially.

Pension funds' use of derivatives does not pose systemic risk for the following reasons:

1. Although the derivatives portfolios of pension funds are typically long-dated and one-directional, they are held to reflect and offset their liabilities, generally resulting in a risk-neutral position overall.
2. Pension funds are subject to very close prudential supervision, whether IORP II or Solvency II, usually in combination with national regulation. Regulations focused on pension funds aim to ensure the highest possible level of protection for policyholders and beneficiaries. In general, prudential requirements ensure they can withstand even very significant shocks to the value of their assets and liabilities and still meet all financial obligations.
3. Pension funds demonstrate higher creditworthiness than most other financial institutions and their risk of default is very low for several reasons, as pension funds are typically:
 - (i) asset-rich long-term investors holding a significant proportion of high-quality government bonds
 - (ii) able to rely on different recovery mechanisms (such as benefit cuts, increased premiums or sponsor support) to restore funding levels in the case of underfunding – these mechanisms would usually be triggered well before pension funds would be unable to meet their obligations. In some jurisdictions, quasi-governmental organisations or protection funds are also established to ensure that the assets and liabilities of pension funds are protected in the event of default of the corporate sponsor
 - (iii) investors with longer time horizons as they only need to pay entitlements at retirement age. This can allow them to ride out short-term market turbulence. Deficits do not have to be resolved at once and the capital of future generations can absorb investment risks
 - (iv) able to demonstrate a capacity to play a countercyclical role in the economy since their member base remains stable regardless of the economic outlook. Members typically cannot withdraw their entitlements until retirement, so there is no risk of a 'run'
 - (v) conservative investors implementing strict investment policies and guidelines for externally managed assets, managing risks prudently in accordance with their regulatory framework

Q4: Do you think that PSAs fulfilling the clearing requirement would have significant consequences on their investment strategies, including any shift in their cash and non-cash asset allocation? Please elaborate on the reasons for your answer and provide numerical data supporting your answer where available.

Yes. A large cumulative move in rates over a short time period would trigger a material short-term cash VM requirement. To manage this risk, pension funds could materially increase their cash allocations, but this would have significant negative consequences for their investment strategy. Without increasing their cash allocation, pension funds would be forced to rely on the repo market, which would be unlikely to provide enough liquidity at short notice in stressed conditions – which might force pension funds to sell assets in a stressed market environment.

To illustrate the amount of cash pension funds might need to access, for a 1% rate move, a pension fund with an average liability duration of 20 years using OTC derivatives to manage liability risk would need to source cash equal to 20% of its assets if it is fully funded, or 28% if it has a funding level of 70%³. This assumes the pension fund hedges 100% of its liabilities using derivatives. Hedging only 50% of liabilities with swaps would reduce this to 10% and 14% of assets respectively.

This analysis is supported by an independent report published in 2014 by Europe Economics and Bourse Consult⁴ for the European Commission estimates that if European pension funds were required to post VM in cash, the total cash collateral needed by them to support a 100bp (1%) move in rates would amount to approximately €205 billion to €255 billion, increasing to €420 billion in more stressed scenarios. It further estimates that this would cost European pensioners between €2.3 billion and €4.7 billion annually. This is a significant and disproportionate cost to European pensioners.

Removing UK pension funds from the analysis leaves approximately €105 billion to €130 billion of potential cash collateral needed for EU27 pension funds, which is still significant.

It is not uncommon for pension funds to have a cash allocation as low as 0%-3%⁵ and most of this will be cash held in order to pay out retirement income. Therefore, a move to cash-only VM puts significant pressure on pension funds to increase their cash holdings, thereby increasing their credit risk to banks versus government bond holdings linked to sovereign risk exposure.

Pension funds are natural holders of bonds and other physical assets, and do not hold much cash. Cash returns are near-zero in the current economic environment and its short-term nature makes it a poor matching asset for long-dated pension fund liabilities. Large cash holdings would therefore significantly increase the asset-liability mismatch, deplete an investment portfolio's overall return⁶, and ultimately increase the financial solvency risk of pension funds. Further, the prudent person principle requires that assets to be invested in the best long-term interests of members and beneficiaries. This implies that cash holdings should always be minimised.

It is also worth mentioning that large allocations to cash would increase credit risk exposure. Cash allocations are held as unsecured deposits in commercial banks, or in money market instruments which also typically take on risk exposure to financial institutions hence cash is not a risk-free asset for PSAs. High quality government bonds provide lower credit risk for pension funds, relative to cash, as they are linked to sovereign rather than financial

³ Assuming an average duration of a swap portfolio to be 20 years (matching those of pension fund liabilities), a 1% move in rates would incur a mark-to-market move of approximately 20% ($=20 \times 1\%$) of notional exposure of swaps. This is equivalent to 20% of assets if the fund's funding level is 100% (i.e. assets are equal to the present value of liabilities); or 28% ($=20\%/70\%$) of assets if the fund's funding level is 70% (i.e. if assets are 70% the present value of liabilities). If only 50% of the liabilities are hedged with swaps, then a 1% rate move would incur a mark-to-market move of 10% ($=20\% \times 50\%$) of liabilities. This is equivalent to 10% of assets if the fund's funding level is 100%; or 14% ($=10\%/70\%$) of assets if the funding level is 70%.

⁴ 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. Short version of the full document can be found here: <https://op.europa.eu/en/publication-detail/-/publication/e9c47336-55c6-40e3-bfbc-113b9a46b44c>

⁵ In the Netherlands, where most pension funds are defined benefit pension funds, an asset allocation of zero to cash is typical. See page 16 of the Global Pension Assets Study 2020 by the Thinking Ahead Institute:

<https://www.thinkingaheadinstitute.org/en/Library/Public/Research-and-Ideas/2020/01/Global-Pension-Asset-Study-2020>

In Ireland, cash accounted for 3% of assets in 2018, and most of this would be encumbered to pay out retirement income. See page 4 of Defined Benefit schemes Review of 2018 statistics by the Pensions Authority:

https://www.pensionsauthority.ie/en/news_press/news_press_archive/defined_benefit_schemes_-_review_of_2018_statistics.pdf

⁶ See our answer to question 10 for an estimate of the impact on portfolio returns if cash allocations are increased.

entity risk. Liquidity risk in relation to high quality government bonds posted as VM can be addressed with appropriate haircuts.

While the 1% rate move analysis conducted by Europe Economics and Bourse Consult might seem conservative, we did witness spikes in rates to almost that level during the Covid-19 market stress. In fact, over just one week, the EUR 20-year swap real rate increased by circa 0.63%. Over two weeks, the French 20-year government bond yield increased by circa 0.90%. This was a classic example of a stressed period when all asset classes were impacted. Equities and credit prices also fell and currencies experienced significant dislocations. This led to significant margin calls for all market participants, not just pension funds. We witnessed some forced selling of assets by market participants although pension funds mostly fared well and did not have to rely much on the repo markets – as they were not yet required to post VM in cash.

While the magnitude of VM moves would also apply for non-cleared trades, there are some major differences. Most importantly, VM for non-cleared trades can be government bonds, which pension funds generally already hold (though, to our concern, this is changing; see our answer to question 9). Also, non-cleared trades require VM to be settled on a T+1 basis, while cleared trades require VM to be settled on a same-day (T+0) basis.

For cleared trades, pension funds must therefore ensure they hold enough cash, or are able to generate enough cash, to meet VM calls on a same-day basis. This gives them very little time to react to movements in interest rates, which – in stressed situations – may increase volatility even for high-quality liquid assets (HQLA) as pension funds seek to convert these into cash.

Q5: Are there further considerations, other than investment strategies mentioned above, either driving or constraining the use of derivatives for PSAs?

Pension funds use derivatives for financial solvency management. Pension funds must also adhere to the prudent person principle. This, combined with a regulatory environment to mitigate risk, has led pension funds to use derivatives to manage interest rate, inflation and currency risks for their beneficiaries. Not engaging in derivatives transactions could be considered as not being prudent risk management.

Going forward, the use of derivatives by pension funds will also be constrained by the negative impact of bank capital rules related to non-cleared trades (see our response to question 9), the push for cash VM in both cleared and non-cleared trades, and second-order risks related to clearing (see our response to question 12). This may impact the use of derivatives by pension funds going forward and affect how they manage risk.

2. On Section 4.2: Why central clearing requirement to post variation margin in cash poses serious challenges for PSAs?

Q6: Do you agree with the description of the challenges met by PSAs to post variation margin in cash? Please elaborate on the reasons for your answer.

In general, we agree with this description. Pension funds typically minimise their allocation to cash in order to maximise efficiency and increase the certainty of being able to afford their obligations to policyholders. As discussed in our response to question 4, requiring them to clear OTC derivative contracts centrally would most likely lead them to either divest a significant proportion of their assets for cash, or face the risk of forced selling in stressed market conditions, in order to meet the cash VM requirements.

We do not agree with following statement in para 29: “Admittedly, the currently low, ultra-low and negative interest rate environment makes some of these considerations less impactful.” The use of swaps for financial solvency management is usually a long-term decision and is driven by other factors (see answer to question 1).

Q7: Do you have any data with respect to the value and/or share of cash holdings in PSAs' portfolios? Can you provide estimates of how much those would need to be increased to service cash variation margin calls?

See our answer to question 4.

Q8: Do you have any data with respect to estimated changes in variation margin for your outstanding contracts for a +/- 1% parallel shift in the yield curve for: a) cash VM of centrally cleared contracts, b) cash VM for OTC contracts, c) bonds VM for OTC contracts, and d) for all your outstanding contracts?

We believe a 100bp (or 1%) parallel shift in rates would cause a cash VM requirement of circa €95bn across Dutch, Danish and Irish pension funds using swaps (see Table 1). This is in line with the Europe Economics and Bourse Consult report estimate of approximately €105 to €130billion of potential cash collateral needed for EU27 pension funds (see our answer to question 4).

Although a pension fund's existing derivative positions may not be mandated to clear, we believe it is right to look at the cash VM impact on the entire swap book because the cash VM issue is expected to apply not only to cleared derivatives but also non-cleared trades (due to the leverage ratio impact, explained in our answer to question 9). It may also be the case that if the strong incentives provided by bank capital rules for clearing hamper the non-cleared markets' liquidity in the future, pension funds may have to consider moving their historical positions into clearing too.

Table 1: A shift in rates could lead to material VM calls across European pension funds⁷

	Netherlands	Denmark	Ireland	TOTAL
Total liabilities (EUR bn)	1,291	595	91	1,988
Percentage of liabilities hedged	40%	40%	25%	N/A
Percentage use of swaps (for liability hedging)	63%	50%	65%	N/A
Swaps notional (EUR bn)	323	119	15	457
Average duration (yrs)	21	20	20	N/A
PV01 (EUR million) ⁸	678	238	29	945
Potential VM call for 100bps rate move (EUR bn) ⁹	67.8	23.8	2.9	94.5

⁷ Data is based on publicly available data where possible, and our estimates where publicly available information is not available. Sources for total liabilities are as follows:

Netherlands – Table 1.19 of statistical tables from OECD report 'Pensions Markets in Focus 2019' (<http://www.oecd.org/daf/fin/private-pensions/globalpensionstatistics.htm>);

Denmark – data converted in EUR (<https://www.forsikringogpension.dk/media/4693/pension-assets-held-by-institutional-investors-dkkbn.pdf>);

Ireland - average of €90bn from IAPF Pensions Investment Survey 2018

(<https://www.iapf.ie/publications/surveys/annualinvestmentsurvey/>) and €58bn from Defined benefit schemes: Review of 2018 statistics by The Pensions Authority (https://www.pensionsauthority.ie/en/news_press/news_press_archive/defined_benefit_schemes_-_review_of_2018_statistics.pdf).

Industry estimates are used for percentage of liabilities hedged, percentage use of swaps for liability hedging, and average duration in years.

⁸ PV01 represents an estimate of the mark-to-market move (or potential VM call) for a 0.01% rate move. This is calculated as ("Total liabilities" x "Percentage of liabilities hedged" x "Percentage use of swaps" x "Average duration") divided by 10,000.

⁹ This ignores convexity for simplicity.

Q9: Can you provide data on the prevalence of acceptance of non-cash collateral in the context of bilateral OTC trades? And conversely on the limitations imposed by counterparties to post initial margins in the form of cash?

Banks have become less willing to accept high-quality government bonds as margin on non-cleared derivatives as bank capital rules provide preferential treatment for cash VM over high-quality government bond VM.

In particular, the leverage ratio rules¹⁰ only permit cash VM to offset leverage ratio derivatives exposure. As a result, many banks are exerting pressure on pension funds to post cash VM for non-cleared derivatives. While some positive modifications have been made to leverage ratio rules relating to client clearing¹¹, this relates to a different issue and does not address the issue faced by pension funds when using non-cleared derivatives.

We are grateful that the European policymakers' Capital Requirements Regulation (CRR) II package has recognised this issue for the Net Stable Funding Ratio (NSFR) rules by treating VM posted as Level 1 HQLA¹² in the same way as cash VM,¹³ but this is still missing for the leverage ratio rules.¹⁴ We request this be extended to the leverage ratio rules.

The bank capital rules have led to a dramatic reduction in the number of banks willing to provide liquidity to pension funds on non-cleared derivatives where pension funds post high-quality government bonds as margin. We are concerned that it will only be a matter of time before even the few remaining banks stop providing liquidity to pension funds who wish to post high-quality government bonds as margin. This would result in pension funds having to post cash VM even under the non-cleared regime, undermining the clearing exemption provided to pension funds by EMIR policymakers. Pension funds therefore are keen to develop a long-term robust solution to address the cash VM issue, as there may be a practical time limit on how long the pension fund exemption remains useful.

It is worth noting that even once pension funds are mandated to clear, not all products are mandated to clear. Inflation swaps, for example, are not mandated to clear, nor will existing positions of non-cleared trades. Therefore, it is important to ensure that the bank capital rules for non-cleared trades are calibrated appropriately otherwise existing and non-mandated products will also be pushed into a cash VM regime due to the impact of the leverage ratio rules set out above. This would increase the potential size of the cash VM issue.

We believe the following changes are critical to maintain liquidity within the non-cleared markets for trades with pension funds during the period of clearing exemptions, and thereafter, for trades that are not mandated to clear after the clearing exemption expires:

- High-quality government bonds VM, with appropriate haircuts, should receive the same treatment as cash VM for calculating exposure of OTC derivatives under the leverage ratio rules, as is currently the case for NSFR rules
- The credit valuation adjustment (CVA) exemption must be maintained during the period of the pension fund clearing exemption, and thereafter for trades that are not subject to mandatory clearing after the expiry of the exemption

¹⁰ See page 155, paragraph 2, of 'Annex: leverage ratio' in the document 'Basel III: Finalising post-crisis reforms' (Basel Committee on Banking Supervision, December 2017) available at <https://www.bis.org/bcbs/publ/d424.pdf>. This states that only cash VM received by banks is allowed to offset replacement cost.

¹¹ Basel leverage ratio rule changes to recognise initial margin posted by clients for cleared trades are set out in the document 'Leverage ratio treatment of client cleared derivatives' (Basel Committee on Banking Supervision, June 2019), available at <https://www.bis.org/bcbs/publ/d467.pdf>.

¹² Excluding extremely high-quality covered bonds.

¹³ CRR2 Recital (51) and articles 428k (4a), 428ah (2a), 428al (4a) and 428az (2a) on the calculation of the NSFR. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:150:FULL&from=DE>

¹⁴ CRR2 Art 429c (3). <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L:2019:150:FULL&from=DE>

- Upcoming changes to the credit and counterparty credit risk framework under CRR III (reflecting Basel III revisions) are calibrated appropriately for pension funds. We provide further details on this below.

Credit and counterparty credit risk framework

The standardised approach to measuring counterparty credit risk exposures (SA-CCR) approach for calculating derivatives exposure, which is already within CRR II rules and will be implemented from June 2021, penalises pension fund derivatives portfolios versus the previous current exposure method (CEM). This is because long-dated, one directional, held-to-maturity portfolios of pension funds are deemed to be riskier than long-short portfolios with high turnover such as those of 'fast money' accounts. We question whether this is the right policy outcome.

Furthermore, the risk weight calculation does not recognise the creditworthiness of pension funds. We believe these two factors, once combined, disproportionately disadvantage pension fund portfolios.

Pension funds typically do not have credit ratings as their business model does not require it. As a result, the counterparty credit risk and credit risk frameworks treat pension funds as 100% risk weighted, similar to unrated corporates. We believe this does not accurately reflect the credit risk of pension funds (see our answer to question 3).

We understand the SA-CCR model will play a greater role once the 'output floor' is implemented, as recommended in Basel III revisions, and expected in EU CRR III rules – further exacerbating this issue. Pension funds have not felt the impact as the implementation of SA-CCR has yet to occur, but we are concerned these changes will make the non-cleared markets even less workable for pension funds going forward.

We recommend the following changes are made to the credit and counterparty credit risk framework to ensure that non-cleared markets remain workable for pension funds during the period of the exemption, and thereafter for trades that not mandated to clear after expiry of the exemption:

- Initial margin posted should be recognised fully to offset SA-CCR exposure (for both counterparty credit risk and leverage ratio rules) so that pension funds have a tool to be able to manage the increased exposure as calculated under SA-CCR. Currently, we understand from discussions with banks the initial margin posted would probably need to be over five times the SA-CCR exposure to reduce exposure by 90%, or over 10 times SA-CCR exposure to reduce the exposure by 95%¹⁵.
- The risk weight of pension funds should reflect the higher creditworthiness of pension funds.
- Interest rate and inflation swaps of the same currency must be treated as being within the same hedging set under SA-CRR rules.

Q10: Can you provide data on the size of the yield drag from holding cash buffers to service variation margin calls in cash? Possibly differentiating between drag from under-investment and costs of funding temporary high liquidity demands?

The OECD in its annual pension report statistics¹⁶ has pointed out that the Dutch pension sector had an annual average return over the past 15 years of around 6.1%. An extra allocation to cash of 5%-10% would mean a drag on annual returns of about 0.3%-0.6%, assuming the return on cash is negligible. For the Dutch pension sector, with assets of about €1.3 trillion, that would mean a cost of c.€4 billion to €8 billion in expected returns.

Extrapolating from the above, in Table 2 we provide an estimate of the impact to Dutch pension funds of different allocations to cash up to 20% of assets (the estimated cash buffer required to support a 1% move in rates – see answer to question 3 for more information).

¹⁵ Assumes mark-to-market is zero, therefore focuses on potential future exposure component of SA-CCR.

¹⁶ <http://www.oecd.org/daf/fin/private-pensions/globalpensionstatistics.htm>

Table 2: How increased allocations to cash could drag on pension fund returns

Cash holding	Reduction in annual return	Reduction in annual return (€ bn)
5%	0.3%	4
10%	0.6%	8
15%	0.9%	12
20%	1.2%	16

Q11: Are you (or are you aware of) a PSA which is a direct clearing member to a CCP? How have you addressed the issues regarding the posting of cash VM?

Direct access models for OTC derivatives

Pension funds are unable to be a direct clearing member to CCPs within the current clearing models as explained in our answer to question 12. Therefore, hybrid direct access models are being explored.

Hybrid direct access models for OTC derivatives clearing are currently not offered by all major central counterparties (CCPs). One European CCP does provide this service, but to our knowledge pension funds are currently not using this. The prevalent participation model by far among those pension funds who have voluntarily embarked on central clearing of parts of their OTC derivatives portfolio is through a traditional client clearing model supported by a clearing member.

It is important to note that direct access clearing models do **not** address the cash VM issue. VM must still be met in cash. The motivation for pension funds desiring such a direct access model is to try to reduce dependency on clearing members (CMs) to ease pressure on second-order issues related to clearing mentioned in question 12 (namely, concerns around CM capacity, lack of confidence in porting, and termination rights issue). These models do not disintermediate banks entirely. We believe CMs still have an important role to play, but a reduced role for CMs with less balance-sheet impact may ease some of the concerns, if designed appropriately. The existing hybrid direct access OTC derivatives client clearing model would not ease these second-order pressures, but we hope it would act as a steppingstone towards developing a modified version aimed at easing some of them.

To reiterate, the debate on the direct access clearing models, while important, does not address the cash VM issue. The primary obstacle preventing pension funds voluntarily clearing in large volumes – the cash VM issue – must be addressed before we can expect serious evolution in this area.

Direct access models for repo clearing

A limited number of large pension funds use a sponsored hybrid direct access model for repo clearing. In practice this means the pension funds have a direct contractual relationship with the CCP, but certain services (including the posting of default fund contributions, intra-day margining, auction in the event of default management, and some operational elements) are provided by a bank offering sponsored CM services. These services are currently only available to large pension funds and capacity is limited as only a couple of banks are willing to support this as sponsored CMs.

Because of the short-term nature of repo transactions (usually overnight to one-year) it is much easier for these models to be created for repo transactions than for OTC derivatives. As already mentioned above, no such service exists for all major CCPs for OTC derivatives clearing.

Although cleared repo trades themselves require VM to be posted in cash, because the cleared repo transactions generate cash, it is possible to hold some cash back for projected VM calls through the life of the (short) transaction. Indeed, one of the motivations for pension funds to connect to repo clearing services is to have additional access to repo markets in the event that the pension funds require cash to meet cash VM calls for both cleared and non-cleared derivatives.

While we fully support this development and have been active in the development of such services working with CCPs and sponsored CMs, we do not believe we can rely upon repo clearing services to provide the cash in the

event of a stressed condition. This is because (i) it still requires the availability of a provider of cash (usually a bank but not necessarily); (ii) it requires that balance sheet is available via the sponsored CM even if a cash provider is found; and (iii) it is only available to large pension funds and capacity is limited as only a couple of CM banks are willing to provide this service.

Q12: Can you indicate whether you have considered becoming a direct clearing member to a CCP for the purpose of clearing mandated contracts? If not, what were the reasons against becoming a direct member? Specifically, were there other considerations beyond the issue of cash variation margins?

Central clearing has an important role to play in reducing systemic risk in the OTC derivatives markets and we fundamentally support central clearing. At the same time, it is important to highlight the shortcomings of the existing clearing models so that we can improve upon them to support the G20's overall aim.

Although posting cash VM remains the most significant issue for pension funds relating to central clearing, clearing also results in other second-order risks that were not present in the bilateral markets, that pension funds cannot mitigate by themselves as it would require structural and industry changes. It is important to note that clearing is not risk-free, and can result in loss mutualisation in certain extreme situations, going against pension funds' interests in protecting their members. Therefore, it is important to make the client clearing model as robust as possible to minimise the chances of these events.

The following second-order issues must also be addressed once the cash VM issue is resolved:

- Ensuring there is sufficient CM capacity to meet demand: Currently, the number of institutions offering clearing services is limited, leading to counterparty risk being highly concentrated in a small number of CMs. Furthermore, CMs retain the ability to change commercial terms and reduce the clearing capacity provided to a client at relatively short notice.
- Greater confidence and mechanisms to ensure porting can work when needed: As porting of positions is highly uncertain if a CM fails or terminates its provision, this poses large counterparty risks for pension funds.
- Greater visibility during a default management process: Currently, default management processes do not provide clients with visibility as to when their portfolios are liquidated, leaving them exposed to risk.
- Minimising risk to clients from the provision of CM termination rights.

To expand further on the final point, CM agreements currently enable a CM to terminate the agreements at its sole discretion and at short notice, often with only 30 to 90 days' notice. If exercised, this would require clients to successfully port positions to a new CM or positions will be forced into liquidation. Even in the positive outcome of successfully porting to an alternate CM, it is likely that clients will be forced to accept unfavourable terms when forced to port in short time frames and in an environment when an incumbent CM reduces or exits their services. The optionality of CMs to continue providing this service for the full duration of long-dated swaps (which can be up to 50 years) is a new risk for cleared trades which does not exist for non-cleared trades.

Many large pension funds would be keen to explore developing a modified direct CM model for OTC derivatives to ease the above second-order issues for clearing. If indeed they are developed, they would likely only be available for a limited number of large pension funds.

However, as mentioned above, this would not address the cash VM issue and industry innovation on this is unlikely to proceed until the cash VM issue is resolved. Without modification to existing models, the following obstacles make the development direct CM model challenging:

- Strict membership criteria by CCPs
- Some pension funds' inability to provide bids in hedging rounds/participate in the auction process under default management
- Pension funds' ability to contribute to default funds varies by jurisdiction. Some local rules prevent this.

- Some pension funds may have limited operational capability to meet intra-day margin calls

While a hybrid direct access clearing model via sponsored CM is available for repo clearing for some large pension funds (as explained in our answer to question 11) it is not straightforward to copy that model across for OTC derivatives clearing, because the short-term nature of repo transaction changes the risk profile of these arrangements. Finally, even with repo clearing, it must be noted that capacity is limited as only a couple of CMs currently support this service and only to limited number of large pension funds.

While we support the ongoing efforts to remove such barriers to direct CCP membership through different hybrid participation models, participation as a direct clearing member would not remove the constraints faced by PSA's in respect to cash VM.

3. On Section 5: Exemption of clearing for PSAs

Q13: Do you agree that the central clearing of OTC derivatives by PSAs by June 2023 at the latest is the ultimate aim? Do you agree that the entry into force of this requirement should be subject to regulatory and market developments enabling market participants to develop appropriate technical solutions within that period? Please elaborate on the reasons for your answer.

Yes. As explained in our answer to question 9, the non-cleared markets are becoming increasingly unworkable due to bank capital rules and pension funds would need a robust solution to be developed ahead of this.

Any robust solution that is developed to solve the cash VM issue must be reliable in stressed markets. The European Commission's expert group has an essential role to play in this process. The solution must be developed in close cooperation between market participants and policymakers. Indeed, policymakers have played an important role in shifting the market structure, and any unintended consequences created by it need their involvement as the market is constrained by regulation and we cannot innovate around regulation.

There are stages that must be met before the exemption expires: designing a solution, operational connectivity, testing and on-boarding. Enough time must be provided to allow for this before the exemption expires. Pension funds are keen to move through this quickly to find a robust long-term solution.

Q14: In the hypothetical scenario where the exemption were to be made permanent, do you think that there would be a price handicap for less-liquid non-cleared contracts vis-à-vis the cleared alternatives? Can you provide estimates of the size of the price differential and the impact, also in terms of yield drag on PSA portfolios?

A permanent clearing exemption can work only if changes are made to bank capital rules around non-cleared markets. As explained in the answer to question 9, banks are less willing to provide liquidity to pension funds on non-cleared derivatives where pension funds post high-quality government bonds as margin. This is due to the balance-sheet constraints imposed by the leverage ratio and other capital rules.

We cannot predict the future price gap between less liquid non-cleared contacts and cleared alternatives since banks' capital rules are still evolving. Moreover, our experience suggests it may not be a question of price handicap, but an inability to trade non-cleared products in a format that would work.

Q15: Under the new regime provided in EMIR Refit with respect to the scope of application of the clearing obligation and the calculation of the positions, do you expect to be or not subject to the clearing obligation once the clearing exemption has come to an end?

Many pension funds, particularly larger ones, will be subject to the clearing requirement. There will be some pension funds that benefit from the small financial counterparty exemption provided in EMIR Refit. Since central clearing is operationally burdensome and costly, smaller pension funds should not be subject to the clearing requirement applied under the principle of proportionality. However, any benefit is likely to be eroded by the issues that pension funds face in non-cleared markets as bank capital rules are increasingly making this market unworkable for pension funds (see our answer to question 9).

The pressure for pension funds to post cash as VM for non-cleared trades (driven by banks' appetite due to the leverage ratio rules) could result in these smaller pension funds voluntarily choosing to clear. Any cash VM analysis should therefore include these smaller pension funds as well given the drive for cash VM for cleared and non-cleared markets.

4. On Section 6: Solutions explored so far to facilitate PSAs to centrally clear their OTC trades

Q16: Do you agree with the pre-conditions for a workable solution as described in paragraph 51? Please elaborate on the reasons for your answer.

Yes. It is extremely important that the solution takes due consideration of pension funds' obligations, particularly the obligation to maintain an asset allocation that is most likely to ensure a pension fund can fulfil its obligations to policyholders and beneficiaries. For this reason, we believe cash holdings must be minimised in order not to forgo potential returns (see our answer to question 4). This is entirely in line with the requirements under the prudent person principle.

It must also be noted that time will be needed to operationalise, test, and implement the solution before pension funds are mandated to clear.

Q17: Are there any other features that the solution should try and achieve?

Pension funds vary in size and operational capacity. It is important to find a cost-efficient solution without a significant increase in operational costs that can be implemented by all pension funds, both large and small, and regardless of whether they exceed the OTC-derivative clearing threshold or not. This is because it is not clear if the non-cleared markets will remain workable for smaller pension funds below the OTC-derivative clearing threshold, which means it is also not clear whether they can rely on the small financial counterparty exemption in practice (see our answer to question 15).

5. On Section 6.2: Relying on the ancillary services of collateral transformation of clearing members

Q18: Do you agree with the statement that no or few PSAs were onboarded with the status of clearing members, but instead clear as direct clients of a clearing member? Do you think that this situation may evolve in the coming years? Please elaborate on the reasons for your answer.

Please see our answers to question 11 and 12 above.

Q19: Do you agree that relying on collateral transformation services already offered by clearing members to their direct clients may be part of the solution? Please elaborate on the reasons for your answer.

No. This solution was considered by the expert group and ruled out because CMs do not generally provide these services to their clients. It is unattractive business for them in the current capital environment and there is very little to no appetite for this from banks. We have assessed these offerings and in the very limited circumstances where a bank may consider providing such a service for its clients, under strict conditions, the volumes are small and would not meet the demand from pension funds; the cost is prohibitive; and it would ultimately increase pension funds' credit risk exposure to banks. Unfortunately, this would not solve the cash VM issue.

CM-provided collateral transformation services relied upon by pension funds only cover intra-day VM calls that must be met with cash VM by the end of the day.

Leverage ratio rules and other bank capital rules constrain banks' balance sheet capacity for repo exposure, affecting the appetite for CMs to provide collateral transformation as a standard part of clearing services. This makes the repo markets less reliable in stressed conditions. This was confirmed by the Committee on the Global Financial System (CGFS), in Paper 59 on repo market functioning, published in April 2017.¹⁷ It stated the following:

- "In some jurisdictions, there are signs of banks being less willing or able to undertake repo market intermediation, compared with the period before the crisis, and seeking opportunities (including through greater netting) to minimise the use of their balance sheet in repo activity. An emerging pattern of volatility in both prices and volumes around balance sheet reporting dates can be associated with banks in some jurisdictions contracting their repo exposure in order to 'window-dress their regulatory ratios and reduce contributions to resolution funds, taxes and fees" (page 1)
- "Partly due to a drive towards improved risk management in the post crisis period, and partly due to stricter regulatory standards that require banks to hold capital in proportion to the size, as well as the composition, of their balance sheets, intermediaries are more cautious in engaging their capital in repo activity" (page 1)
- "In a number of jurisdictions, some end users have already experienced difficulties (or increased costs) placing cash in repo markets, but the significance of these costs to the real economy is hard to gauge. A contraction in intermediation capacity may also reduce the degree to which repo markets can respond to demand during future periods of stress. A reduction in repo market functioning might create frictions in cash and derivatives markets and reduce the ability of financial institutions to monetise assets. The scale of the resulting costs to financial stability and the real economy in times of stress might be significant altogether, although such situations have not materialised on a substantial scale in the most recent past. Repo market adaptations might mitigate the costs to some end users but could also introduce new risks." (page 2)

This was written before the Covid-19 crisis. The Covid-19 experience has provided empirical evidence for these statements (see our answers to questions 20 and 23).

¹⁷ The report is available here: <https://www.bis.org/publ/cgfs59.pdf>

Q20: To what extent has the constraint on the bank clearing members' capital requirements been eased and now allows for their role of collateral transformation to be better fulfilled?

Note that paragraph 70 of the consultation that refers to the Basel changes made to client clearing does not provide any benefit for repo transactions. Paragraph 71 did not refer to a specific rule and we did not identify what rule change was being referred to here. We are not aware of any changes to the leverage ratio rules improving the availability of collateral transformation services for pension funds.

During the recent Covid-19 crisis, a sell-off of all risk assets (equity and credit) and even high-quality government bonds, and dislocations of currency markets, led to sudden VM calls across a number of investment portfolios for many market participants. This increased demand for cash, and while the repo markets functioned well for intra-bank transactions, it did not function well for the buy-side. The International Capital Market Association (ICMA) market report on repo market functioning during Covid-19 states the following:

- "While the demand to access the repo market increased during the height of the crisis, banks' capacity to intermediate that access did not. Buy-side participants report an increased reliance on the repo market as fund outflows drove the need to generate cash against holdings, as well as to meet margin calls against derivatives positions as volatility increased. However, it would seem that banks struggled to keep pace with client demand. Many report limiting business to top tier clients, with no capacity for new business. Banks further report that in light of the heightened volatility, it was more a case of RWA (risk weighted assets) limits becoming the binding constraint on business, rather than the Leverage Ratio, **particularly for one-directional business flows (such as net borrowers of cash)**."¹⁸ (our emphasis)

This provides empirical evidence that the repo markets struggled to cope with buy-side demand in stressed conditions. During market turmoil triggered by Covid-19, significant pressure in the repo markets and money market funds (also relevant for sourcing cash) was building up, until central banks globally took actions to ease the stress. In an unprecedented action, the US Federal Reserve made temporary changes to its supplementary leverage ratio rules to exclude US Treasuries and central bank reserves from those calculations to help boost banks' balance sheets overall¹⁹.

In an environment where pension funds are required to clear, we do not believe repo markets would be able to cope with the demand for cash.

Q21: Do you think that modifying the calculation of the leverage ratio might have an impact on the offer on repo intermediation activities by banks and be a part of the solution? Please elaborate on the reasons for your answer.

It is indeed possible that appropriate leverage ratio rules could make the repo markets work better. However, other elements of bank capital rules must also be examined for their impact on the repo markets. During the Covid-19 crisis, according to an ICMA report, "it was more a case of RWA (risk weighted assets) limits becoming the binding constraint on business, rather than the Leverage Ratio, particularly for one-directional business flows (such as net borrowers of cash)"²⁰.

¹⁸ Page 5 of 'The European repo market and the COVID-19 crisis: An ICMA European Repo and Collateral Council (ERCC) market report', published April 2020, is available here: <https://www.icmagroup.org/assets/documents/Regulatory/Repo/The-European-repo-market-and-the-COVID-19-crisis-April-2020-210420.pdf>.

¹⁹ For more information, see: <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200401a.htm>

²⁰ Page 5 of 'The European repo market and the COVID-19 crisis: An ICMA European Repo and Collateral Council (ERCC) market report', published April 2020, is available here: <https://www.icmagroup.org/assets/documents/Regulatory/Repo/The-European-repo-market-and-the-COVID-19-crisis-April-2020-210420.pdf>.

The offer of repo intermediation activities will always depend on banks' willingness to provide the services. There is no guarantee that banks will provide liquidity when needed. The only way to have assurance of a cash provider in times of stress is by having some linkage to the central bank.

Q22: Can you elaborate on issues you have encountered, or risks you perceive, in relying of clearing members to provide collateral transformation services, including transformation into cash to meet variation margin requirements? Is this a service that is available to you? If not, what are the obstacles?

No. This service is unavailable to us. CMs generally do not provide these services to their clients. It is unattractive business for them in the current capital environment and there is very little to no appetite for this from banks. In the very limited circumstances where a bank may consider providing such a service for their clients, under strict conditions, the volumes are small and would not meet the demand from pension funds. Unfortunately, this would not solve the cash VM issue.

CM-provided collateral transformation services relied upon by pension funds only cover intra-day VM calls that must be met with cash VM by the end of the day.

Banks do provide repo facilities to pension funds outside of their CM service. This is discussed in our answer to question 23.

6. On Section 6.3: The market-based repo solution

Q23: What is your view on solutions based on collateral transformation via the repo market? Do you think that initiatives on collateral transformation solutions via the repo market constitute one possible solution? What other solutions are worth exploring?

The first line of defence for pension funds entering clearing is a combination of (i) some increases in cash allocations, but this needs to be balanced to ensure it does not negatively impact long-term financial solvency²¹, and (ii) increasing repo market participation, although many of the innovative approaches are only available to large pension funds.

Pension funds, particularly the larger pension funds and asset managers servicing them, have started a programme to increase repo market participation by actively developing the following:

- Widening repo market access by finding non-bank providers of cash
- Setting up cleared repo access via sponsored clearing models. This is only available for large pension funds and capacity is limited as only a couple of banks are willing to provide CM service for repo clearing.
- Setting up funds to intermediate repo transactions between pension funds and cash providers

Market-based collateral transformation tools such as these can only be relied upon in normal market conditions, and not in stressed conditions. They do not provide any guarantee that a provider of cash will be there when needed. It is in stressed conditions that this is most likely to be tested.

In stressed conditions, the demand for cash by all market participants is likely to increase. At the same time, the supply of cash is likely to either shrink or at least not fully meet the increased demand as banks reduce their risk appetite and pull back from deploying balance sheet for supporting clients to protect their own business. Market participants unable to access cash will be forced sellers of physical assets, which is likely to exacerbate any downward spiral of asset prices. If cash VM calls are not met within the short timeframes expected in a cleared

²¹ See our answer to question 4 for more information.

framework, an entity can enter into technical default, even if it is asset rich. For this reason we believe a second line of defence is needed – involving central banks as the only reliable provider of liquidity in stressed conditions.

As explained in our answer to question 20, the Covid-19 experience provides strong empirical evidence for the above. Falling asset prices across all asset classes increased demand for cash to meet margin calls, and although the repo market volume increased the demand outstripped the supply. This resulted in significant pressure in the repo markets and money market funds (also relevant for sourcing cash), until central banks globally took actions to ease the stress. In an unprecedented action, the US Federal Reserve made temporary changes to its supplementary leverage ratio rules to exclude US Treasuries and central bank reserves from those calculations to help boost banks' balance sheets overall²².

It must be noted that the Covid-19 experience showed that intra-bank repo markets functioned well and even increased in volume, while buy-side clients struggled to access the repo markets to meet their demand as evidenced by the ICMA repo market report (see our answer to question 20 above). It should be no surprise that banks, having access to central bank reserves, experienced little to no issue in accessing the repo markets during these times. On the other hand, buy-side clients did not have access to central bank reserves, and were also reliant on banks' balance sheets at a time when banks' appetite for repo exposure was shrinking.

We believe this experience shows that it would be unwise to introduce a regulatory framework that could require pension funds to post c.€105 billion to €130 billion of cash VM (see our answer to question 1) in stressed conditions without a robust solution. The daily average volume in the repo market as calculated by the ICMA is between €300 billion to €350 billion²³. Most of this volume is likely to be in inter-bank transactions and not available to buy-side participants. Given that, we believe it is unlikely the repo market would be able to fully absorb the potential additional cash demand from pension funds and that additional sources of liquidity should be made available.

In the event that pension funds have to source cash through repo markets to meet CCP cash VM calls that must be met the same day, they would probably only have couple of hours after repo markets open to do so. This would be the case even when the CM meets the intra-day margin calls with cash. This is because there is a midday cut-off for trading repos to operationally settle them on a same-day basis, and in practice, there is not much liquidity in the repo markets after early morning.

Q24: Do you think that the repo market is suitable for PSAs' needs? If not, what are the impediments for PSAs to access the repo market? Please elaborate on the reasons for your answer, specifying if these are related to cost, operational complexities or regulatory constraints.

Repo markets are suitable for pension funds to rely upon in normal market conditions but not stressed conditions. See our answers to questions 20 and 23.

Q25: Do you have any data with respect to PSAs' potential liquidity demand in business-as-usual? Also, do you have any data with respect to PSAs' maximum liquidity needs in stressed market conditions?

See our answers to questions 4 and 8.

²² For more information, see: <https://www.federalreserve.gov/newsevents/pressreleases/bcreg20200401a.htm>

²³ Source: ICMA

Q26: Do you think that PSAs fulfilling their liquidity needs via the repo market will have strong implications on this market's liquidity and procyclicality? Can you provide quantification of the risk of the likelihood of a failure of market-based repo solutions to meet PSAs' needs? Under which conditions?

In times of stress, the likelihood of a failure of market-based repo solutions to meet pension funds' needs is high. As was illustrated at the height of the Covid-19 crisis (see our answer to question 20), the rush for cash to cover margin calls and the demand to access the repo markets significantly increased, while banks' capacity to intermediate remained constrained. Liquidity was scarce and often granted only to top-tier clients.

Requiring pension funds to post cash VM in such an environment would increase demand for cash and exacerbate the pressure on the repo markets. Against this backdrop, we believe the market-based repo solution alone is unreliable and there is a clear need to ensure that liquidity will be granted in the repo markets in times of market stress. The establishment of a collateral transformation arrangement with central banks would resolve this issue.

Q27: Do you think that there is agreement or evidence that the impact of the limitations of the solutions explored so far would be such that there is a need for devising and developing some form of emergency liquidity tools? If so, under which scenarios and how could such tools actionably and realistically be deployed?

Yes. The limitations of the solutions explored so far demonstrate a clear need for developing emergency liquidity tools if pension funds are mandated to clear. It is necessary for central banks to consider providing a facility that would allow pension funds to transform high-quality collateral to cash, at a haircut and cost.

It should be noted that this is not a liquidity facility, nor is it a bail-out. Pension funds have large amounts of high-quality assets. This facility would simply provide transformation of liquid high-quality government bonds to cash.

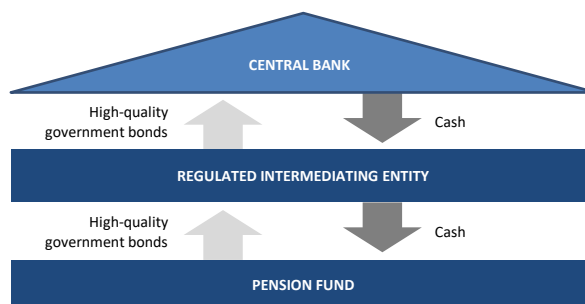
We are keen to engage with policymakers to structure this to address any concerns central banks may have. Our initial thoughts on the characteristics of such a solution are set out below:

- Central banks to provide a high-level commitment to provide cash in exchange for high-quality government bonds to pension funds, at a cost and with a prudent haircut. This commitment could be provided only as a last resort in extremis, but should be operationalised during normal market conditions to ensure that it can function when needed.
- The cost and haircut should be set proportionately to align interests and to address both moral hazard concerns and reduce any credit risk taken by the central bank. This would also ensure that pension funds are only incentivised to use this facility in stressed market conditions when all other options have been exhausted.
- We propose a high credit quality, regulated entity intermediates between pension funds and central banks (see Figure 4). This entity could be an existing CCP, or any other regulated entity set up purely for this purpose (e.g. a new CCP that only trades with central banks and pension funds, a new banking entity, or potentially even a fund or utility structured for this purpose only). This would avoid central banks having to have a direct relationship with a large number of pension funds. Instead, they would have a relationship with an entity regulated by the central bank.
- We believe it is highly unlikely that the intermediating entity can be an existing bank, unless this activity is ring-fenced from other banking activities and significant steps are taken – potentially including modifications to bank capital rules – to ensure that banks are able to commit to providing pension funds with collateral transformation services when required.
- One option, and perhaps the easiest option, would be to explore a solution whereby pension funds can trade repo transactions with central banks over trading venues and platforms, with the trade being ultimately cleared so that a CCP intermediates the trade. This solution would only work if a central bank is willing to be the cash provider to pension funds in stressed conditions so there is always a guarantee

that cash could be sourced when needed, albeit at a cost. However, this solution would only work for large pension funds that can access repo clearing. For smaller pension funds an alternative arrangement would need to be explored, perhaps with the set-up of a fund or utility to intermediate small pension funds and CCP.

- Central banks would be exchanging eligible collateral of the state, or eurozone states, for cash in the same currency. The risk taken would therefore be a combination of maturity transformation and credit risk, which could be appropriately managed with prudent haircuts.

Figure 4: How an emergency liquidity provision mechanism might be structured



Q28: In the hypothetical scenario where central banks extended liquidity support to PSAs, can you provide estimates of the costs, also in terms of infrastructure, ancillary requirements, and regulatory obligations that this option would entail? Can you express the cost in term of yield drag on PSAs performance, especially vis-à-vis the null option of increasing cash allocation in PSAs' investment portfolios?

It is not possible to answer this question without engagement with central banks on what this structure could look like. The set-up costs do not need to be high as the activity is simple: transforming high-quality bonds into cash. Central banks do this regularly and building the infrastructure therefore should not be too complicated, though this will of course depend on the complexity of the agreed solution.

Q29: What type / form of emergency liquidity tools do you think could be deployed? And whom should they be accessible to? In particular, is there any tool other than central bank liquidity that you would recommend to ESMA to consider?

See our answer to question 27.



Contacts

For further information please contact us, details below:

APG

Zöhre Tali
zohre.tali@apg-am.nl

ATP

Jan Ritter
JRI@atp.dk

Forsikring & Pension

Henrik Munck
hmu@forsikringogpension.dk

iapf

Jerry Moriarty
Jerry.Moriarty@iapf.ie

Insight Investment

Vanaja Indra
vanaja.indra@insightinvestment.com

MN

Christiaan Wanningen
cw@mn.nl

Pensioenfederatie

Matthies Verstegen
verstegen@pensioenfederatie.nl

PensionsEurope

Matti Leppälä
Matti.Leppala@pensionseurope.eu

PGGM

Michel de Jonge
michel.jongede@pggm.nl

PKA

Inger Huus Pedersen
ihu@pka.dk