Eurosystem response to EU Commission's consultation on macroprudential policies for non-bank financial intermediation (NBFI)

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FSC high level task force on NBFI

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1 General remarks

Since the global financial crisis, a key aspect shaping the course of the financial system – globally and in Europe – has been the growing importance of non-bank financial intermediation (NBFI). Indeed, since 2008, more than two-thirds of the growth in the size of the euro area financial system has stemmed from NBFI entities, whose total assets increased from €23 trillion to €54 trillion as at the end of 2023.[1] As things currently stand, close to 60% of the total assets of the euro area financial system are held by NBFI entities, and the total assets of these entities are more than three times the size of the euro area economy.

While NBFI is heterogeneous, comprising many different entities and activities, the growth in NBFI over the past decade has been driven largely by the asset management sector. Total assets under management by investment funds have more than doubled since the global financial crisis, driven by net inflows into the sector, along with increases in asset valuations. This has led to a marked increase in the share of the investment fund sector to 19% of euro area financial system assets. By comparison, other NBFI entity types, such as insurance corporations or pension funds, have seen a broadly constant share of financial system assets, standing at around 9% and 4% respectively.

Mirroring the changes that have taken place within the financial sector, NBFI has been playing an increasingly important role in financing the real economy in Europe. For example, NBFI plays a key role in euro area sovereign debt markets, including – increasingly – through the growing role of hedge funds in secondary market trading of euro-area sovereign bonds. NBFI has also become increasingly important in financing the corporate sector, accounting for a growing share of total debt financing to European non-financial corporations (NFCs). Although there are cross-country differences, in aggregate, non-bank financial institutions are estimated to account for around 25% of total credit to NFCs in the euro area.2 Moreover, NBFIs, especially investment funds, have emerged as the largest investor in Europe's commercial real estate markets.

The growth of capital markets financing – enabled by NBFI entities – has the potential to bring economy-wide benefits. It can diversify the sources of financing available to the real economy, thus strengthening macro-financial resilience. It can also enable further diversification of asset portfolios, with significant benefits for investors. In doing so, the sector can support broader economic activity and act as a useful alternative to bank financing. The potential for such economy-wide benefits of

[1] This includes investment funds, money market funds, insurance corporations and pension funds, securitisation vehicles and the residual other financial institutions (OFIs), which may be part of a larger company structure. The figure should be interpreted as an upper bound estimate, as the residual OFIs account for more than a third of total NBFI assets and it is unknown which part of this should in principle be consolidated into balance sheets of NFCs, banks or other NBFIs. The estimates provided in the body of this report of the shares of total financial sector assets in the hands of NBFI sectors have been calculated using the relevant dataset (i.e. BSI for banks and MMFs, IVF for investment funds, ICB for insurance corporations, PFBR for pension funds and QSA statistics for OFIs) and exclude financial assets held by the Eurosystem.

[2] See the report entitled *Financial Integration and Structure in the Euro Area*, ECB, June 2024.

increased intermediation via capital markets underpins the EU's savings and investment union agenda. For the Eurosystem, achieving a single market for capital in Europe is imperative.

In order to fully realise these benefits, it is critical that capital market financing is a sustainable form of financial intermediation. Safeguarding the resilience of NBFI is an essential precondition for capital markets to serve as a sustainable source of financing to EU firms, consistent with the aims of the savings and investments union. Resilience means that non-bank financial intermediaries, when faced with adverse shocks, are able to continue providing services to the broader financial system and economy, and do not amplify or propagate shocks in times of stress. If this form of financing is not resilient, companies might not want to rely on it, savers might choose not to use it and, ultimately, it may have adverse effects on the real economy and the wider financial system in times of stress.

The resilience of NBFI – and capital market functioning more broadly – is particularly important from the perspective of the Eurosystem. Market disruptions due to NBFI vulnerabilities can pose a threat to financial stability and impair the transmission of monetary policy. Indeed, in previous stress episodes, where NBFI vulnerabilities contributed to market disruptions, extraordinary central bank interventions were needed to restore market functioning and safeguard financial stability. Enhancing NBFI resilience is intended to ensure a more stable provision of financing to the economy and minimises the need for extraordinary central bank interventions. This requires enhancing the regulatory framework, including the development of a macroprudential approach for regulating the sector.

2 Potential sources of systemic vulnerability in the NBFI sector

Like all forms of financial intermediation, NBFI can entail financial vulnerabilities, which – if left unchecked – can lead to a build-up of systemic risk.[3] The main sources of vulnerabilities in NBFI, stem from: (i) excessive exposure to liquidity risk, including due to structural liquidity mismatches and/or a lack of liquidity preparedness for margin and collateral calls; (ii) excessive leverage; and (iii) interconnectedness across the financial system. These vulnerabilities can also interact and reinforce each other. More specifically:

- **Excessive exposure to liquidity risk:** Liquidity risk can arise through structural liquidity mismatch, which occurs when the liabilities of NBFI entities are more liquid than the assets in which they invest. For example, for open-ended funds (OEFs) and money market funds (MMFs), structural liquidity mismatch can be driven by a discrepancy between the redemption terms offered to investors and the amount of time it may take the fund managers to liquidate fund holdings in an orderly manner, i.e. with no substantial impact on transaction costs or prevailing market prices. In the presence of structural liquidity mismatches in OEFs (as well as in those MMFs that invest in less liquid assets, like private sector debt), investors can have the incentive to redeem ahead of other investors, especially when faced with adverse shocks. Such dynamics have the potential to amplify shocks, by triggering "excess" redemptions that require managers to engage in larger asset sales than in the absence of liquidity mismatch. Inadequate preparedness for margin and collateral calls is another source of liquidity risk and can arise if financial intermediaries do not adequately factor in potential liquidity needs stemming from unexpected margin or collateral calls on their derivatives/repo positions.

- **Leverage:** Investors that operate with high levels of leverage, or in markets that facilitate the build-up of leveraged positions, are likely to be more vulnerable to adverse shocks. For example, in the presence of high leverage, a shock to asset prices may force investors to unwind their positions abruptly. Similarly, if investors are faced with unexpected margin or collateral calls, they may need to sell their assets quickly to raise cash (especially if they lack the preparedness needed for increased margin requirements). When leveraged NBFI entities using similar investment strategies sell similar assets at the same time, this can trigger a downward spiral of falling prices and forced selling, meaning that non-bank leverage has the potential to amplify market shocks. Subsequently, stress may propagate to other parts of the financial system, including banks, either

[3] As highlighted in the early academic and policy discussions on macroprudential policy, the analysis of systemic risk should cover all financial sub-sectors. See the special feature entitled "The concept of systemic risk", *Financial Stability Review*, ECB, December 2009.

directly through the counterparty default channel or indirectly through common asset exposures.

- **Interconnectedness:** The financial system is characterized by a complex web of connections. These linkages can take place within the NBFI sector, between NBFIs and other parts of the financial system (e.g. banks), and between the NBFI sector and the real economy. They can also take place across borders, both within Europe and at a global level. These interconnections are not a risk per se, but act as channels through which shocks affecting the NBFI sector can be transmitted to other parts of the financial system and/or the real economy. Cross-sectoral and cross-border interconnectedness can operate through several channels, including (i) the use of derivatives and repos; (ii) bank affiliation with asset managers; (iii) cross-holdings between funds; (iv) exposures of insurers and pension funds, as holders of investment fund units; and (v) common or highly concentrated asset holdings across the financial system.

The presence of these vulnerabilities has the potential to generate – or contribute to – systemic risk. Systemic risk in the NBFI sector can arise when, in the presence of financial vulnerabilities and insufficient resilience, NBFI entities amplify shocks, with adverse implications for the rest of the financial system and/or the broader real economy. The sector's growing footprint within the wider financial system, as well as in financing the real economy directly, has the potential to magnify the systemic impact of vulnerabilities in the NBFI sector. For example, growing interlinkages within the financial system can cause vulnerabilities in NBFIs to spill over to banks, with implications for banking sector resilience. NBFI vulnerabilities can also affect the functioning of markets in times of stress, given the growth in capital market financing of the economy.

There have been several episodes in recent years where these NBFI vulnerabilities contributed to disruptions in core markets, with adverse implications for the broader financial system and the real economy. For example, in March 2020, MMFs faced with sizeable liquidity mismatches experienced large redemption requests amid a broader "dash for cash". The actions taken by the MMFs to meet these redemptions contributed to a disruption in commercial paper markets, requiring central bank intervention to restore market functioning. Over the same period, OEFs – especially those with exposures to less liquid assets, like corporate debt – saw particularly large redemptions. Once again, the actions taken by OEF managers to meet these redemptions contributed to strains in market functioning, which only eased following asset purchases by central banks. More recently, high leverage in liability-driven investment (LDI) funds, whose investors were UK pension funds, contributed to a severe gilt market disruption, with broader implications for economy-wide financing conditions and requiring intervention by the UK authorities to restore market functioning. Such interventions are not costless and can contribute to moral hazard among market participants, which is why it is critical to raise the baseline level of NBFI resilience before a shock materialises.

3 The need for a macroprudential perspective in the regulation of the NBFI sector

The current regulatory framework for NBFIs has not been designed with the macroprudential aim of reducing the build-up of systemic risk. Rather, it has a strong focus on ensuring investor protection and market integrity. These are, of course, critical public policy objectives – and entirely complementary to financial stability. Indeed, financial stability and the reduction of systemic risk is a precondition for investor protection. However, the systemic perspective is different: it goes beyond the conduct and solvency of individual entities to focus on the potential impact that NBFI vulnerabilities could have on the broader financial system and economy, including – but not solely related to – investors in NBFI entities.

While the current regulatory framework includes certain requirements that have positive system-wide effects, these have not been sufficient in themselves to reduce the propensity of certain NBFI cohorts to amplify shocks. Various elements of the current regulatory framework enhance entity-level resilience and reduce susceptibility to shock amplification. For instance, in asset management, there are structural leverage limits for some fund cohorts, eligible asset requirements, liquidity management tools and asset concentration limits. However, recent episodes of stress have shown that the current regulatory framework for NBFI has not been sufficient to reduce the propensity of certain NBFI cohorts to amplify shocks and generate systemic risk.

Against this backdrop, the evolving nature of the financial system requires strengthening the macroprudential lens in the regulation of NBFI. A sound macroprudential framework for NBFI cannot simply be a transposition or extension of the existing framework applied to the banking sector. Applying the approach developed for banks to the diverse set of entities and activities that make up the NBFI universe would not be effective. The need for a specific macroprudential framework lies in the specific features that distinguish NBFIs from banks (e.g. balance sheet structure and activities) and the different ways in which various segments of the financial sector contribute to systemic risk.

The primary objective of a macroprudential perspective in the regulation of the NBFI sector would be to ensure that this growing segment of the financial sector is resilient to, and therefore less likely to amplify, adverse shocks. In achieving this primary objective, the macroprudential approach would enhance financial stability and address systemic risk. This would also help to support the effective transmission of monetary policy by helping to ensure that NBFI provides a resilient and sustainable source of funding to the real economy. Greater NBFI resilience would also be beneficial for the development of resilient capital markets in Europe, as NBFIs are core participants in capital markets. It would also help to make

the banking system more resilient, given the increasing level of interconnectedness between banks and NBFIs.

The following key principles should underpin the design of a sound macroprudential approach for NBFI:

- It should take **a system-wide perspective**, considering how the range of vulnerabilities in NBFI could affect – and interact with – the rest of the financial system and/or the real economy.
- It should be **appropriately tailored**, with policy measures accounting for the diversity of different business models within the NBFI sector. A one-size-fits-all approach is unlikely to be effective, given the diversity of NBFI entities and activities.
- The implementation of policy measures should be the result of a **careful balance between costs and benefits** from the perspective of the broader economy and be proportionate to the severity of the risks addressed and the nature of the entities or activities involved.
- It should focus primarily on **building resilience by mitigating existing vulnerabilities ex ante**, while also reducing the potential for contagion or amplification of shocks when one materialises.
- It should be developed with **flexibility to respond to risks as they evolve over time** and be able to **target both entities and activities**. Various NBFI entities, especially investment funds, may not be individually systemic, but their collective actions may pose financial stability concerns. Therefore, the framework needs to be able to target cohorts of entities with similar vulnerabilities.
- **Global coordination and consistency** are critical enablers in mitigating the risk of cross-border fragmentation and regulatory arbitrage. Given the global nature of capital markets, vulnerabilities outside of the euro area could have implications for European financial stability and vice versa. The risk of leakage would also be higher in the absence of coordination.
- It should be supported by a **clear governance framework**, including one that enables cooperation between authorities, both domestically and internationally.

4 Eurosystem recommendations to strengthen the macroprudential perspective in the regulation of the NBFI sector

The Eurosystem has identified a number of priorities for developing a macroprudential approach in the oversight of the NBFI sector in Europe, as outlined below. While recognising that such an approach will take time to advance fully, not least because there are still gaps in authorities' collective understanding of the nature and magnitude of the systemic risk posed by NBFI, the Eurosystem judges that pursuing this approach should remain a priority for policymakers, both in Europe and internationally.

4.1 Implementing internationally-agreed reforms

Recently agreed reforms to the global NBFI regulatory framework need to be implemented in Europe without delay. In light of the growing importance of NBFI for global financial stability, the Financial Stability Board (FSB), working alongside global standard setters, has been leading global efforts to enhance NBFI resilience.[4] These internationally agreed policy reforms have important macroprudential benefits and should be implemented swiftly in the EU. Key priorities in this context are discussed in the following paragraphs.

Implementation of the FSB's 2021 proposals to enhance MMF resilience. In its latest peer review on MMFs, the FSB noted that implementation of its 2021 proposals to enhance MMF resilience had been uneven across jurisdictions. Unlike the EU, the United States and the United Kingdom have either reformed, or consulted on reforms, of their respective regulatory frameworks for MMFs to be consistent with the FSB's proposals.[5] It is critical that Europe proceeds with substantively equivalent regulatory reforms. As outlined in the ESRB's recommendations on MMFs, there are a number of key MMF reform proposals that should be implemented in Europe.[6] These include, among others, increasing liquidity requirements for private debt MMFs and making liquidity buffers more usable.

[4] See FSB, "Enhancing the Resilience of Non-Bank Financial Intermediation: Progress Report", July 2024.

[5] Proposed changes to current MMF regulation in the United Kingdom include a significant increase in the minimum proportion of highly liquid assets that all MMF types must hold and the removal of the link between liquidity levels and the use of LMTs. Meanwhile, the US SEC introduced new policy measures for MMF in 2023, including a mandatory liquidity fee framework for certain institutional MMFs. It also raised the minimum liquidity requirements for MMFs and removed ties between regulatory liquidity thresholds and the imposition of fees and redemption gates.

[6] See ESRB, "Recommendation of the European Systemic Risk Board on Reform of Money Market Funds", 2021.

Implementation of the FSB's 2023 recommendations on OEF resilience. The FSB's work, in conjunction with IOSCO, has laid out an international blueprint for reducing the vulnerabilities posed by liquidity mismatch in OEFs. This includes recommendations to ensure (i) closer alignment of a fund's redemption terms with the liquidity of its portfolio; and (ii) greater availability, use and consistency in the use, of anti-dilution liquidity management tools (anti-dilution tools or ADTs). As with the MMF reforms, it is critical that the EU moves to implement these internationally agreed standards fully and swiftly. Notably, this process is already under way (e.g. on LMTs, with the recent review of the Alternative Investment Fund Managers Directive (AIFMD) and the Undertakings for Collective Investment in Transferable Securities (UCITS) Directive), although there is more to be done. From a macroprudential perspective, the focus should be on:

- Implementing the FSB's proposals on classifying funds, depending on asset liquidity. This is a crucial building block towards implementing the FSB's revised recommendations, where much of the technical detail has been left to the jurisdictions to design, accounting for the specificities of their local markets. Therefore, the relevant regulatory authorities (ESAs, ESRB, ECB and NCBs/NCAs) should now elaborate on how this framework will be implemented in the EU. For OEFs categorised as "illiquid", such as real estate funds, longer notice periods should be required to enable closer alignment between the redemption terms offered and their portfolio's lack of liquidity. In line with FSB requirements, the redemption frequency and/or notice periods of funds holding illiquid assets should be calibrated so as to reflect the underlying lack of asset liquidity (for instance, this could be a minimum period of one year for real estate funds).[7]

- Encouraging more consistent use of ADTs in both normal and stressed times, to reduce the scope for first mover advantage in OEFs. Given the criticality of LMTs in the revised FSB recommendations, the Commission and other regulatory authorities in the EU should seek to ensure – through regulatory guidance – effective and consistent use of anti-dilution LMTs across OEFs. If, following implementation of the FSB framework in the EU, rates of ADT activation (as part of the day-to-day liquidity management of funds, as well as during periods of stress) do not increase materially, the Commission should consider future legislative amendments to deliver that outcome, such as requiring OEFs with exposures to less liquid assets to actively use such ADTs at all times, especially swing pricing or anti-dilution levies (ADLs), even on a partial basis. As outlined in the FSB recommendation, for less-liquid funds that cannot implement the requirements for ADTs, OEF managers should consider and use measures to reduce the liquidity offered to fund investors (e.g. by reducing redemption frequency and/or implementing long notice or settlement periods).

Implementation of the FSB's policy recommendations (once finalised) on enhancing the liquidity preparedness of non-bank market participants for

[7] See ESRB, "Issues note on policy options to address risks in corporate debt and real estate investment funds from a financial stability perspective", September 2023.

margin and collateral calls during times of market-wide stress. Recent FSB work has identified weaknesses in risk management and governance as key causes of inadequate liquidity preparedness among some non-bank market participants during recent episodes of market liquidity stress. In response, the FSB has consulted on key policy recommendations focused on managing and mitigating the impact of spikes in margin and collateral calls in NBFI. Once finalised, it is critical that these recommendations be implemented swiftly and fully in the EU.[8]

More broadly, the FSB is continuing to work to enhance NBFI resilience, focusing currently on risks related to NBFI leverage, and it is important that Europe contributes to – and implements – any new, internationally agreed reforms. A key area of policy focus for the FSB in 2024 is non-bank leverage. The FSB, in collaboration with the International Organization of Securities Commissions (IOSCO) and the Basel Committee on Banking Supervision (BCBS), is undertaking and coordinating policy work to enhance the monitoring of, and to address, financial stability risks arising from leverage in NBFI. This includes taking stock of the policy tools that are available to authorities in FSB member jurisdictions to contain such risks and considering potential policy solutions to address them. One promising policy tool is the implementation of margin requirements for bilateral repo transactions, as proposed in an ESRB report from 2020.[9] While the FSB's work on leverage is still ongoing, an important interim step would be to adopt the FSB's minimum haircut framework for securities financing transactions (SFTs), originally published in November 2015 and last updated in September 2020, to manage NBFI leverage acquired via securities lending and repo transactions backed by non-government debt collateral.

4.2 Enhancing the NBFI macroprudential toolkit

Under the current regulatory framework for NBFI in Europe, there are significant gaps in the macroprudential toolkit available to authorities to guard against the build-up of systemic risk. The only explicit, ex ante macroprudential tool is Article 25 of the AIFMD, which enables authorities to limit excessive leverage in the case of funds managed by alternative investment managers. Acknowledging that there may be costs in adding a large number of macroprudential tools, the Eurosystem has proposed a small number of additional macroprudential tools, focusing on investment funds. Within that, priority should be given to those tools that seek to build resilience ex ante. In line with the key principles outlined above, the EU should seek to ensure, if possible, that such tools are also introduced at the international level, in light of the global nature of capital markets.

The first proposal is to introduce an explicit macroprudential tool to mitigate the risks that can arise from structural liquidity mismatch in OEFs ex ante. Such a macroprudential tool could resemble the existing Article 25 AIFMD measure for leverage, although it would be designed to specifically target liquidity mismatch in

[8] SFTs backed by government bonds would not be included within this framework.

[9] See ESRB, "Mitigating the procyclicality of margins and haircuts in derivatives markets and securities financing transactions", January 2020.

OEFs. It could be deployed for both AIFs and UCITS, depending on the nature of the systemic risk posed by cohorts of either fund type. As with the existing Article 25 tool for leverage, an equivalent liquidity tool should be discretionary and ex ante in nature, aimed at preventing the build-up of risk and activated in response to assessed ex ante threats to financial stability. Further consideration would be required on the precise design of such a tool, although priority should be given to providing authorities with the power to apply this on the liability side of funds. For instance, one option could be to provide authorities with the power to specify longer notice periods for specific fund types on an ex ante basis, if this is warranted to safeguard financial stability.[10] The activation of this tool could also be linked to the results of stress tests. To support the availability and consistent use of any new tools, a greater coordinating role for ESMA, in consultation with the ESRB, should be considered, possibly including powers to impose EU-wide measures, consistent with the enhanced institutional framework and coordination mechanisms outlined below.

The second proposal is to close the gaps relating to leverage in the existing toolkit, by requiring all UCITS funds using value-at-risk (VaR) to report and disclose regularly on their leverage, based on the commitment approach, and introducing a discretionary tool to impose tighter leverage restrictions for these funds. Most UCITS funds are already subject to a leverage limit. However, the current UCITS framework permits the use of VaR to measure the maximum potential loss due to market risk for certain funds. Indeed, if the VaR approach is used, especially when the absolute VaR is adopted, UCITS funds might reach levels of leverage that are considered substantial according to AIFMD definitions (and where Article 25 provides authorities with tools to limit leverage based on systemic risk considerations). This leaves a gap in the regulatory toolkit when it comes to limiting leverage-related risks in the funds sector. As a starting point, all UCITS funds using VaR should be required to report and disclose regularly on their leverage, based on the commitment approach. Further, the ability to impose additional constraints for such UCITS funds – should they pose risks to broader financial stability – would enhance the existing macroprudential toolkit. This could be achieved through the use of the same power as exists now in the context of the AIFMD (Article 25) for those UCITS using the VaR approach, i.e. the ability to impose leverage or other restrictions on those funds.

More broadly, while the Eurosystem prioritises the above ex ante tools, consideration could also be given to envisaging greater involvement of public authorities in the activation of specific LMTs for pursuing macroprudential (rather than microprudential) goals. This is to underpin the system-wide perspective, which can go beyond the ability of individual fund managers to incorporate in their own decision-making. A bigger role for public authorities could be achieved either through greater regulatory prescription on the activation of LMTs or through direct powers to authorities, for cohorts of funds. However, any intervention by the authorities should be carefully balanced against the need to ensure that it is the fund managers that remain ultimately responsible for managing their individual

[10] This should not be confused with the “extension of notice periods” LMT introduced in the recent UCITS and AIFMD reviews, which in contrast is designed to be applied on an ex post basis.

investment fund. Giving the authorities the option to intervene would reinforce the need for them to have access to real-time data, for example on fund flows.

4.3 Introducing system-wide stress testing in Europe

System-wide stress tests are a novel – and potentially very powerful – tool for identifying and quantifying risks to the resilience of core markets. Sectoral stress tests, focused on individual entities or groups of entities, are not sufficient on their own to shed light on the potential evolution of system-wide dynamics during stressed market conditions. In contrast, system-wide stress tests seek to explore the response of a diverse set of market participants to adverse shocks and the potential implications of such collective responses for the functioning of core markets. Therefore, system-wide stress tests allow for a better understanding of the propagation of shocks in light of financial vulnerabilities across NBFI entities. Introducing a European system-wide stress test would be an important building block for deepening the collective understanding among regulators of systemic vulnerabilities, including those potentially stemming from NBFI entities.

Conducting a system-wide stress test in Europe would require cross-sectoral supervisory cooperation and enhanced data and information sharing. By design, a system-wide stress test would cover a wide range of market participants, including banks, insurers, funds and central counterparties (CCPs). As these agents are supervised by different authorities, conducting a system-wide stress test would require close supervisory collaboration. Moreover, building a good understanding of interconnections across the financial system, which would be essential for assessing system-wide dynamics during a stress event, would require enhanced access to and/or sharing of data and information, across both supervisory authorities and EU jurisdictions. These are essential building blocks, not only for conducting a system-wide stress test, but also, more broadly, for enhancing the broader framework for monitoring – and addressing – system-wide financial vulnerabilities across Europe (see below).

4.4 Enhancing NBFI data as well as access to these data by different authorities

Data are a critical enabler for assessing potential vulnerabilities in the NBFI sector. In recent years, considerable progress has been made in filling data gaps for the NBFI segment of the financial system, yet significant gaps remain. One example would be the need to develop consistent metrics of leverage across the NBFI sector. Another would be to enhance the available metrics used for assessing liquidity mismatch, including through better data on redemption terms for investment funds. A third example relates to gaps in the data needed to reliably assess NBFI liquidity preparedness for margin and collateral calls. These are all areas currently being explored by ongoing FSB work. Data gaps are even more material for unregulated parts of the NBFI segment within the wider financial system, by limiting the

authorities' capabilities to monitor the regulatory perimeter (see below). Progress to fill material data gaps (building on the FSB's work) and to enhance the quality and comparability of existing data, while being mindful of the costs to industry and seeking to address these in an efficient manner, is a necessary building block to strengthen the collective understanding among authorities of how NBFI contributes to systemic risk.

Granting EU authorities access to a broad range of already existing NBFI datasets needs to progress swiftly, given the significance of NBFI for financial stability. The Eurosystem collects a range of data from NBFI entities for statistical purposes, while relevant EU national competent authorities collect supervisory data from regulated NBFI entities and some data (EMIR, SFTR, etc.) are collected via trade repositories. In practice, though, direct access to, and/or arrangements for, sharing this data across authorities are insufficient. For example, access by Eurosystem central banks to granular regulatory data on NBFIs and to transaction data stored in trade repositories is very limited in most cases. So, the Eurosystem as a whole – under its monetary and financial stability mandate – does not have direct access to entity-by-entity supervisory data already reported under AIFMD/UCITS, MMFR, Solvency II, MiFID/MiFIR and EMIR. Similarly, supervisory authorities do not necessarily have direct access to granular data collected by the Eurosystem for statistical purposes. This is a suboptimal arrangement and needs to be addressed. Among other benefits, this can help streamline reporting obligations for industry, and avoid duplication and overlap. Provisions granting timely and efficient sharing of NBFI statistical and regulatory data between central banks (both the ECB and NCBs) and relevant EU national competent authorities should be included in relevant EU regulations. At the same time, legal constraints hindering data access and usage should be lifted, at least when it comes to financial stability.

Such a mechanism would also enable greater access to data across jurisdictions, which is a significant gap in the current framework. Capital markets are inherently global in nature, and many of the activities of NBFI entities are cross-border. Therefore, to properly understand potential financial vulnerabilities in one jurisdiction, authorities also need to rely on data and information disclosed by entities supervised in other jurisdictions. At present, there is no established framework for sharing granular data on NBFIs across jurisdictions, thus limiting authorities' capabilities to understand the flow of capital within the EU, assess potential vulnerabilities stemming from cross-border NBFI activities, and monitor the effectiveness of macroprudential measures that could be subject to cross-border leakages. A mechanism for sharing the data already collected by the Eurosystem and by national competent authorities would better enable macroprudential authorities across the EU to fulfil their mandates. Ultimately, given the global nature of capital markets, such a mechanism would optimally be designed and operated at an international level, although even without that, Europe can take a big step forward when it comes to sharing data within the EU.

4.5 Governance arrangements

An effective governance framework is an important building block for strengthening the macroprudential perspective in the regulation of NBFI. Due consideration should be given to the respective roles of macroprudential authorities at national level and the European Supervisory Authorities (especially ESMA), to ensure consistency in both the development and the implementation of macroprudential policy tools. Of course, a key foundation for financial stability in a broader sense is an effective supervisory framework, and – as previously outlined in the broader context of the savings and investment union initiative – the ECB's Governing Council is supportive of further integration in the supervision of EU capital markets, involving the ESAs working in cooperation with national supervisors.[11] Further efforts to advance the harmonisation of supervisory approaches across the EU and ensure a consistent treatment of risk in the NBFI sector would support financial stability. In the context of macroprudential oversight of NBFI entities, the current architecture needs to be enhanced to reflect the significant cross-border footprint of NBFI entities. Indeed, the absence of a mechanism for coordination of macroprudential measures for NBFI entities across the EU could render such measures less effective in achieving their ultimate objectives.

In that context, a clearer framework for policy coordination and standard-setting is required within the EU. Such an approach should ideally rest on a set of common rules and standards across the EU, accompanied by coordinated supervisory action at EU level. Enhanced coordination and additional supervisory powers for ESMA would help to ensure consistent treatment of risks, promote a level playing field within the EU and reduce the potential for regulatory fragmentation or arbitrage.

It is crucial that cooperation between European, national macroprudential authorities and national supervisory authorities should be strengthened also for the broader non-bank financial sector. Against this backdrop, two elements should be prioritised in the context of the macroprudential framework for NBFIs: (i) reciprocation and (ii) "top-up" powers.

- **Reciprocation:** Reciprocation is an important mechanism for guarding against cross-border leakage. Existing regulations, such as Article 40 of MiFIR, could provide a useful template for how reciprocation might work within the EU in the context of NBFI measures. Under such a framework, ESMA – having consulted the ESRB – would be required to assess whether a national measure proposed by one Member State should also be applied across the wider EU. Such a mechanism would strengthen the effectiveness of national powers, while guarding against the potential for regulatory fragmentation or arbitrage across the EU. For example, if an NCA were to implement leverage limits for a group of funds, the reciprocation mechanism would ensure that funds with a similar

[11] The Governing Council envisages an "integrated supervision of EU capital markets, including by ensuring the European Supervisory Authorities (especially ESMA and EIOPA) have a European and independent governance, sufficient resources and comprehensive oversight powers, and directly supervise the most systemic cross-border capital market actors – in cooperation with their national supervisors"; see Statement by the ECB Governing Council on advancing the Capital Markets Union, 7 March 2024.

systemic risk profile in other Member States would also become subject to those limits, if deemed appropriate, given the nature and magnitude of the risks, when operating in that jurisdiction.

- **Top-up powers:** An additional mechanism to enhance coordination across the EU would be to grant ESMA (top-up) powers for specific macroprudential tools to address systemic risk within the EU. This type of power is relevant for NBFI due to the high cross-border component of the sector's activities. For example, if some funds or group of funds were judged to pose a systemic risk to an EU Member State, or to the EU as a whole, due to excessive leverage (or liquidity mismatch), ESMA – in collaboration with national macroprudential authorities and competent authorities and after consulting with the ESRB – should be given the power to request the implementation of leverage limits (or the new macroprudential tool for liquidity, as outlined above) or to top up existing national measures.

Finally, data and information sharing should be enhanced to support such cooperation.

4.6 Monitoring – and adjusting where needed – the regulatory perimeter

The regulatory perimeter is a key consideration when designing a macroprudential perspective in the regulation of NBFIs. For example, many of the assets under management in the EU are not managed by funds regulated under AIFMD or UCITS, but rather through discretionary mandates (MiFID), plus a range of wider investment activities, such as that of family offices. Despite the various regulatory regimes, the activities are often similar and can sometimes pose similar risks. A prime example would be Archegos Capital Management, a US family office that in March 2021 defaulted on margin calls from several derivatives counterparties.

There are two important implications when it comes to developing a macroprudential perspective in the regulation of NBFIs:

- First, there is merit in expanding data availability and systemic risk assessment for areas of asset management activity that extend beyond the traditional focus on regulated investment funds (UCITS and AIFs) to also include discretionary mandates and family offices. The latter may pose similar risks (e.g. those arising from synthetic leverage or inadequate preparedness to meet margin calls) with their counterparts regulated under AIFMD/UCITS, although – because they lie outside the regulatory perimeter – there is very limited information with which to gauge the magnitude of these risks. Of course, any additional data collection would need to be proportionate to the risks posed by these entities and subject to a cost-benefit analysis.

- Second, given that activities can be carried out and risks can be taken under different regulatory regimes, systemic risk should be addressed holistically to

include both an entity- and an activity-based approach. The latter in particular could help to avoid potential arbitrage across unregulated entities. Where warranted, designing measures in such a way that they could address similar vulnerabilities, regardless of regulatory regime, would close an existing opportunity for regulatory arbitrage and address systemic risks more effectively. Of course, this may be rather challenging to achieve in practice, and would be required only where activity in the unregulated segments was of significant systemic importance. In some instances, an activity-based outcome could be delivered through measures that apply to regulated institutions. For example, when guarding against leverage-related risks, measures that cover the information that (regulated or unregulated) non-bank financial entities disclose to (regulated) leverage providers could enhance risk management standards.

5 Answers to selected consultation questions

5.1 Key vulnerabilities and risks stemming from NBFI

Question 1. Are there other sources of systemic risks or vulnerabilities stemming from NBFIs' activities and their interconnectedness, including activity through capital markets, that have not been identified in this paper?

The main risks to financial stability posed by NBFI stem from the following, mutually reinforcing, sources of vulnerability: (i) excessive exposure to liquidity risk, including due to structural liquidity mismatches or a lack of liquidity preparedness for margin and/or collateral calls; (ii) excessive leverage; and (iii) interconnectedness across the financial system, including due to concentration risk.[12] The presence of these vulnerabilities has the potential to generate – or contribute to – systemic risk. Specifically:

- **Excessive exposure to liquidity risk:** Liquidity risk can arise from structural liquidity mismatch, which arises when the liabilities of NBFIs are more liquid than the assets in which they invest.[13] For example, for open-ended funds (OEFs), structural liquidity mismatch can be driven by a discrepancy between the redemption terms for the funds' investors and the amount of time it may take the fund manager to liquidate fund holdings in an orderly manner, i.e. with no substantial impact on transaction costs or prevailing market prices. In the presence of structural liquidity mismatches in OEFs (as well as in those money market funds (MMFs) that invest in less liquid assets, like private sector debt), investors can have an incentive to redeem ahead of other investors, especially when faced with adverse shocks. Such dynamics have the potential to amplify shocks, by triggering "excess" redemptions that require managers to engage in larger asset sales than in the absence of liquidity mismatch. Liquidity risk can also arise if NBFIs fail to adequately consider, as part of their liquidity risk

[12] For a comprehensive literature review, see Claessens, S., "Non-Bank Financial Intermediation: Stock Take of Research, Policy and Data", CEPR Working Paper, CEPR, 2024.

[13] See, for example, Chen, Q., Goldstein, I. and Jiang, W., "Payoff complementarities and financial fragility: Evidence from mutual funds outflows", Journal of Financial Economics, Vol. 97(2), 2010, pp. 239-262; Fecht, F. and Wedow, M., "The dark and the bright side of liquidity risks: Evidence from open-end real estate funds in Germany", Journal of Financial Intermediation, Vol. 23, 2014, pp. 376-399; Goldstein, I., Jiang, H. and Ng, D.T., "Investors flow and fragility in corporate bond funds", Journal of Financial Economics, Vol. 126(3), pp. 592-613; Ma, Y., Xiao, K. and Zeng, Y., "Mutual Fund Liquidity Transformation and Reverse Flight to Liquidity", The Review of Financial Studies, Vol. 35, 2022, pp. 4674-4711; Falato, A., Goldstein, I. and Hortaçsu, A., "Financial fragility in the COVID-19 crisis: The case of investment funds in corporate bond markets", Journal of Monetary Economics, Vol. 123, pp. 35-52; and Branzoli, N., Gallo, R., Ilari, A. and Portioli, D., "Central banks' corporate asset purchase programmes and risk-taking by bond funds in the aftermath of market stress", Journal of Financial Stability, Vol. 72, 2024.

management practices, the potential need for cash to meet unexpected margin or collateral calls on their derivatives/repo positions.[14]

- **Leverage:** Investors that operate with high levels of leverage, or in markets that facilitate the build-up of leveraged positions, are likely to be more vulnerable to adverse shocks. For example, in the presence of high leverage, a shock to asset prices may force investors to unwind their positions abruptly. Similarly, if investors are faced with unexpected margin or collateral calls, they may need to sell their assets quickly to raise cash (especially when investors lack the preparedness for increased margin requirements). When leveraged NBFIs using similar investment strategies sell similar assets at the same time in response to an adverse shock, this can trigger a downward spiral of falling prices and forced selling. An adverse shock affecting leveraged investors may propagate to other parts of the financial system, including banks, either directly through the counterparty default channel or indirectly through common asset exposures.

- **Interconnectedness:** The financial is characterized by a complex web of connections. These linkages can take place within the NBFI sector, between NBFIs and other parts of the financial system (e.g. banks), and between the NBFI sector and the real economy. They can also take place across borders, both within Europe and at a global level. These interconnections are not a risk per se, but act as channels through which shocks affecting the NBFI sector can be transmitted to other parts of the financial system and/or the real economy. Cross-sectoral and cross-border interconnectedness can operate through several channels, including (i) the use of derivatives and repos; (ii) bank affiliation with asset managers; (iii) cross-holdings between funds; (iv) exposures of insurers and pension funds, as holders of investment fund units; and (v) common or highly concentrated asset holdings across the financial system.

As for vulnerabilities stemming from interconnectedness, the following two aspects merit particular attention:

- **Concentration risk:** There are different dimensions of concentration that can lead to a build-up of vulnerabilities. NBFIs may be exposed to specific sectors or geographical locations, making them vulnerable to abrupt downturns in those sectors or locations (see our answer to Question 4). Another dimension of concentration risk is when financial market segments are dominated by just a few players. This could render those markets vulnerable to the unexpected inability of these key players to perform their critical functions (including “irreplaceable” insurers with a strong footprint in certain market segments; see

[14] See ESRB, “Liquidity risk arising from margin calls”, ESRB Report, 2020; Jukonis, A., Letizia, E. and Rousová, L., “The Impact of Derivatives Collateralization on Liquidity Risk: Evidence from the Investment Fund Sector”, IMF Working Papers, IMF, 2024; Alfaro, L., Bahaj, S., Czech, R., Hazell, J. and Neamțu, I., “LASH risk and interest rates”, Bank of England Working Paper, 2024; and Jansen, K., Klingler, S., Ranaldo, A. and Duijm, P., “Pension Liquidity Risk”, Working Papers, No 801, De Nederlandsche Bank, 2024. For life insurers, liquidity risk also originates from surrender options; see, for example, Grochola, N., Gründl, H. and Kubitza, C., “Life insurance convexity”, Working Paper Series, ECB, 2023.

also our answer to Question 3). This kind of concentration risk has been acknowledged and addressed with specific regulations in other parts of the financial sector (e.g. banking, insurance).

- **Collective behaviour:** In addition to individually systemic institutions within the financial system, the collective actions of NBFIs have the potential to generate systemic risk. Several NBFIs, especially investment funds, may not be individually systemic, but their collective actions can have systemic implications. The implementation of similar strategies by several players, with similar underlying vulnerabilities, has the potential to transmit and amplify adverse shocks to the rest of the financial system and/or the real economy, particularly in times of market stress.

Question 2. What are the most significant risks for credit institutions stemming from their exposures to NBFIs that you are currently observing? Please provide concrete examples.

Greater financial intermediation via the NBFI sector has resulted in increased interconnectedness between banks and NBFIs. Banks' exposures to NBFI can take several forms. These include but are not limited to: lending to NBFIs, counterparty exposures through derivative and repo transactions, receipt of funding from NBFIs, indirect exposures through common asset holdings (such as equity and debt securities or real estate), or bank affiliation with NBFIs. Through these channels, shocks in the NBFI sector – due to underlying vulnerabilities such as liquidity mismatch or excessive leverage – could transmit to credit institutions.

Banks are exposed to a number of risks stemming from their exposure to NBFIs. These include:

- Counterparty and credit risk. This arises, when banks provide funding to NBFIs or are counterparties to derivatives/repo transactions. For example, banks have significant asset exposures to NBFIs, which accounted for around 9% on average of significant institutions' total assets as of end-2022.[15]

- Liquidity risk as a result of the short-term funding that banks receive from MMFs or other NBFIs. The total share of funding from NBFIs accounted for roughly 14% of total bank liabilities as of end-2022. Unsecured deposits accounted for the largest part of funding, followed by debt securities funding and repo funding.

- Market risk, including through common asset holdings. Banks can incur mark-to-market losses where vulnerabilities in NBFIs contribute to market disruptions and there are commonalities in portfolio composition. Typically, banks tend to display a greater home bias in their securities portfolios compared with NBFIs, thus limiting the extent of their common exposures.

[15] See the special feature entitled "Key linkages between banks and the non-bank financial sector", *Financial Stability Review*, ECB, May 2023.

- Step-in risk related to bank affiliation of asset managers. This refers to the risk of a bank providing financial support to an affiliated asset manager who is enduring financial stress, in the absence of, or in excess of, any contractual obligations to provide such support. While a number of reforms have been introduced since the financial crisis to reduce the likelihood of this risk, it still remains a potential channel of interlinkages between banks and NBFIs.

- Reputational and operational risks. These are also particularly relevant when banks are affiliated with asset managers. For example, where an asset manager is facing financial stress, there could be adverse reputational spillovers to the affiliated bank.

A recent example highlighting the risks for credit institutions stemming from exposures to NBFIs is that of Archegos Capital Management, a US family office. In this instance, opaqueness and excessive leverage obtained from multiple credit institutions (each unaware of the extent of the concentrated positions) led to significant losses for those institutions. Its eventual default in March 2021 also highlighted the increasing relevance of derivatives as a channel of contagion, as entities such as family offices or hedge funds rely on bank services to operate and obtain funding in these markets. These transactions are associated with market and counterparty risks for credit institutions and can result in chain reactions and collective action problems.

Question 3. To what extent could the failure of an NBFI affect the provision of critical functions to the real economy or the financial system that cannot easily be replaced? Please explain in particular to which NBFI sector, part of the financial system and critical function you refer to, and if and how you believe such knock-on effect could be mitigated.

The NBFI sector consists of very diverse entities, all performing different economic functions. Various entities perform critical economic functions within the financial system, such as enabling access to payment and settlement, mobilising and channelling savings into productive investment, enabling risk hedging strategies, and channelling financing to the real economy. Moreover, the share of these critical activities undertaken by the NBFI sector has been steadily growing. NBFI infrastructures such as central counterparties (CCPs) and central securities depositories (CSDs) are essential for proper market functioning, by providing settlement services and enabling the management of counterparty risks. Investment funds channel savings into productive investments and provide market-based credit and direct lending. In the euro area, market-based credit, meaning lending that is intermediated via the markets in the form of debt securities and non-retained securitised loans, makes up around 25% of total external credit to non-financial corporations (NFCs).[16] Insurers enable the hedging of risks and are also key

[16] See ECB, Financial Integration and Structure in the Euro Area, June 2024.

providers of finance, with a large and concentrated market footprint in certain market segments, notably in long-term fixed income products.[17]

In the investment fund sector, it is typically the collective actions of funds that have the potential to amplify and transmit shocks to the rest of the financial system and real economy. While there have been examples of individual entities posing a systemic risk (see, for example, Long Term Capital Management (LTCM)), generally a certain degree of critical mass and concentrated market positions are needed to generate wider spillover effects.[18] Spillover effects can occur within the NBFI sector, across sectors or across borders. The March 2020 market turmoil and the UK gilt market disruption linked to vulnerabilities in liability-driven investment (LDI) funds are examples of where the collective actions of investment funds had systemic risk implications. To mitigate these risks, it is essential to develop and operationalise a macroprudential approach to funds, tailored as necessary to address the specific nature of the systemic risks generated by different types of investment funds (see our answers to Questions 16-25 below).

The collective behaviour of insurance corporations and pension funds (or large insurance corporations), can also pose risks to the provision of critical functions to the financial system and real economy. In particular, the actions of life insurers and pension funds can generate wider spillover effects, owing to their large and concentrated market footprint. For instance, during the euro area sovereign debt crisis of 2010-2012, euro area insurers shed government bonds issued by downgraded countries with rising sovereign bond spreads (except where the insurers held domestic sovereign bonds),[19] which amplified the adverse market dynamics.[20] The LDI episode in 2022 also provides an example of how the interconnectedness of pension funds with investment funds can result in knock-on effects with systemic implications.

For the non-life insurance sector, the negative impact of failure depends primarily on the substitutability (or lack thereof) of individual insurers in highly concentrated markets. According to the International Association of Insurance Supervisors (IAIS), these conditions can often arise in the following markets: catastrophe coverage, marine insurance, aviation insurance, and export credit or trade credit insurance.[21] In principle, the negative financial stability effects of such failures could be mitigated by reducing reliance on only a very few providers for certain insurance services. Yet it is also crucial that adequate tools be available to

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[17] See ESRB, "EU Non-bank Financial Intermediation Risk Monitor 2024", NBFI Monitor, No 9, 2024, Chart 2; Kaufmann, C., Storz, M. and Leyva, J., "Insurance corporations' balance sheets, financial stability and monetary policy", Working Paper Series, No 2892, ECB, 2024, Figure 1.

[18] See Central Bank of Ireland, "An approach to macroprudential policy for investment funds", *Discussion Paper*, July 2023.

[19] See, for example, Fache Rousová, L. and Giuzio, M., "Insurers' investment strategies: pro- or countercyclical?", *Working Paper Series*, No 2299, ECB, 2019; and Bijlsma, M. and Vermeulen, R., "Insurance companies' trading behaviour during the European sovereign debt crisis: Flight home or flight to quality?", *Journal of Financial Stability*, Vol. 27, 2016, pp. 137-154.

[20] See the box entitled "Interconnectedness of derivatives markets and money market funds through insurance corporations and pension funds", *Financial Stability Review*, ECB, November 2020; and Ghio, M. et al., "Derivative margin calls: a new driver of MMF flows", Working Paper Series, No. 2800, ECB, 2023.

[21] See IAIS, Holistic Framework for Systemic Risk in the Insurance Sector, November 2019.

help prevent failures and, where failures occur, to minimise the negative repercussions by preserving the continuity of those critical functions. In this respect, suitable frameworks should be put in place to ensure the recovery and orderly resolution of insurance and reinsurance corporations. The newly formulated EU directive in this area – the Insurance Recovery and Resolution Directive (IRRD) – should make a valuable contribution here.

Question 4. Where in the NBFI sectors could systemic liquidity risk most likely materialise and how? Which specific transmission channels of liquidity risk would be most relevant for NBFI? Please provide concrete examples.

Vulnerabilities in the NBFI sector have the potential to generate systemic risk through different channels, especially when NBFIs act collectively in the face of common underlying vulnerabilities.

Significant liquidity mismatch can amplify asset sales by investment funds. As became evident during the March 2020 market turmoil, during periods of market stress, funds more exposed to less liquid assets can face larger redemptions due to first-mover advantage dynamics. At an aggregate level, widespread redemptions across investment funds can trigger forced sales by managers. This mechanism can be also fuelled by a re-assessment of liquidity conditions by investors, particularly during stress periods. Liquidity illusion among investors can lead to increased redemption requests if they perceive that daily redemption of fund units equates to liquidity of a funds' assets. Whilst these dynamics may be manageable at the individual fund level, when aggregated across a cohort of funds, they can have systemic implications. This mechanism amplifies stress on the assets held by funds and can also spread to initially non-stressed assets. This systemic risk driver is particularly relevant given the rapid growth in investment fund assets since the global financial crisis.

Increased interconnectedness can foster the propagation of idiosyncratic weakness at a system-wide level. The relative scarcity of information available to authorities on segments of the NBFI sector (e.g. private credit and other financial institutions (OFIs)) means that there are challenges to assessing potential channels of contagion. Indirect interconnectedness, though exposure to common assets, must also be considered as part of NBFI-related systemic risk. Given the relative concentration of investment fund positions and their portfolio overlap with insurance firms, common trading behaviour among a critical mass of funds can amplify tensions on underlying markets, including in key markets like those for sovereign bonds, corporate debt and real estate.

Margin and collateral requirements can also generate systemic liquidity risk, notably for intermediaries implementing highly-leveraged strategies. Derivatives and securities financing transactions (SFTs) impose margin requirements on participants that can increase significantly amid sudden dislocations in market prices. The liquidity shortfall generated by inadequate preparedness for

these margin calls induces reactions (e.g. fire sales), which propagate the shock to other parts of the financial system (see answer to Question 26).

Concentration can generate systemic risk in a variety of ways. As illustrated by the Archegos episode and more broadly by the March 2020 bout of market volatility, which was, in part, amplified by NBFI vulnerabilities, NBFIs can accumulate a significant exposure to a limited set of assets that would be difficult to unwind without affecting the market price of both the underlying securities and the derivatives based on those securities. Concentration in the case of Archegos had been exacerbated by the high leverage obtained from multiple prime brokers, each unaware of the full extent of the concentrated position that the leveraged entity had amassed.

Financial stability risks stemming from the investment fund sector can impair the transmission of monetary policy during stress periods. Vulnerabilities in investment funds can impair market functioning, affecting monetary policy transmission and funding costs for both firms and banks. In March 2020, MMFs with exposures to less liquid, private sector debt experienced heightened outflows, which contributed to a disruption of commercial paper (CP) markets. Extraordinary central bank interventions were needed to restore market functioning and enable the effective transmission of monetary policy. More recently, the gilt crisis in the United Kingdom triggered an intervention by the Bank of England.

Question 5. Where in the NBFI sectors do you see build-up of excessive leverage, and why? Which NBFIs could be most vulnerable? Please provide concrete examples.

Leverage can take several forms and its relevance varies across different segments of the NBFI sector. Leverage can be financial (i.e. borrowing) or synthetic (i.e. derivative exposures), and it can be either on the balance sheet of NBFIs or off the balance sheet (e.g. by holding shares in investment vehicles that use leverage techniques).

Data gaps, as well as the lack of a comprehensive metric capable of accurately capturing the total amount of leverage across all sources and types of leverage (repos, derivatives, structured products, etc.), may obscure the full extent of leverage in NBFIs. This makes it harder to conduct a reliable assessment of related vulnerabilities and adopt appropriate mitigating measures. It can also lead to the build-up of large and concentrated leveraged positions, which can amplify the impact of shocks on the financial system.

A significant share of NBFI leverage is held by OFIs and certain types of investment funds, a group that includes various types of entities, ranging from broker-dealers and hedge funds to holding companies, finance companies and securitisation vehicles.[22] Moreover, the weight of this group in total NBFI assets

[22] See FSB, "The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation", 2023.

(and leverage) is likely to be underestimated due to the scarcity of granular information on these entities, which are subject to lighter reporting requirements.

High leverage is most pronounced among hedge funds, especially those engaged in commodity trading and global macro and relative value strategies, which have significant synthetic leverage and/or repo borrowing.[23] Overall, the EU hedge fund sector is relatively small in terms of total assets (€429 billion at end-2023, according to ESMA). The sector also appears to have a relatively balanced liquidity profile and well-diversified exposures, which mitigates the risk of spillovers to other financial institutions. However, when a shock does occur, spillover risks can become more significant, spreading and amplifying stress to the point of systemic disruption. Moreover, a deeper analysis of the risks posed by hedge funds is required, due to their complex strategies and structures. In fact, there is now an increasing need for such analysis, given the growing footprint of these complex intermediaries in key financial markets, including sovereign bonds markets.

Real estate funds are also highly vulnerable given their size, leverage and liquidity profile. While the leverage of real estate funds tends to be limited, the top quartile of the distribution is significantly leveraged (i.e. higher than hedge funds for the same percentile distribution). Moreover, the size of the sector (€1,500 billion in total assets at end-2023, according to ESMA data) and its footprint on the overall commercial real estate sector can amplify the potential impact of shocks within this sector. This vulnerability is exacerbated by the significant liquidity mismatch on the balance sheets of open-ended real estate funds, which represents more than half of EU sector NAV as at the end of 2023 (ESMA data).

In order to limit the risks of excessive leverage, several EU jurisdictions have imposed structural leverage limits on real estate funds. Among them, Italy and France impose leverage limits on retail real estate funds, while Germany imposes limits specifically on retail open-ended real estate funds. Other jurisdictions, such as Ireland, have introduced a leverage limit under Article 25 of the AIFMD for such funds.

Other types of investment funds generally have low financial leverage on average. This can be for regulatory reasons, in the case of most UCITS, or due to market practice, in the case of AIFs, given the low risk appetite for unsecured exposures among leverage providers (especially banks). Nevertheless, leverage-related vulnerabilities may arise due to the use of synthetic leverage. In the euro area, there is evidence of pockets of highly leveraged funds (e.g. those with significant equity derivatives portfolios) that could give rise to financial vulnerabilities.24 The metrics used to assess UCITS fund leverage (namely value-at-risk (VaR) and commitment approaches) are imperfect proxies of actual leverage and could be revised or used in combination to address potential blind spots in assessing actual leverage levels (see also answers to Questions 43 and 45).

[23] See ESMA, EU Alternative Investment Funds, 2023.

[24] See ECB, Financial Stability Review, November 2023.

Question 7. Considering the role NBFIs have in providing greater access to finance for companies and in the context of the Savings and Investment Union project, how can macroprudential policies support NBFIs' ability to provide such funding opportunities to companies, in particular through capital markets? Please provide concrete examples.

Market-based finance is an important source of financing, including for innovative firms.[25] NBFIs are essential to the allocation of such capital to the real economy, helping channel personal savings into public and private markets, and providing the main channel through which foreign capital can be deployed in the European economy.[26]

Developing and operationalising a sound macroprudential framework tailored to the risk generated by different cohorts could foster the development of a more resilient NBFI sector, thus supporting the savings and investment union agenda. Preventing the build-up of risks and addressing vulnerabilities in the NBFI sector is essential to providing EU firms with a stable source of equity and debt financing. Academic and policy research that assessed the impact of post-2007 regulatory changes on the banking sector suggests that, in the long term, more resilient intermediaries provide greater and more stable financing flows to the economy. The implications are similar in the case of the NBFI sector.

A growing body of evidence shows that adverse shocks in the NBFI sector may lead to adverse effects for financial markets and for firms' financing.[27] The interplay between vulnerabilities related to liquidity mismatch, excessive leverage, interconnectedness and risk concentration could amplify shocks through the financial system if not mitigated through appropriate regulation and supervision. Resilience among NBFIs is essential for ensuring that the benefits of market-based financing of the real economy are fully realised. Macroprudential regulation has an important role to play in making markets more resilient, ensuring the long-term success of the savings and investment union and achieving the required growth (in terms of size and diversity) in NBFI-originated financing to the real economy.

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[25] See ECB, "Statement by the ECB Governing Council on advancing the Capital Markets Union", 2024.

[26] In 2022, NBFIs accounted for 39% of the European financial sector's assets, see ESRB, "EU Non-bank Financial Intermediation Risk Monitor", *NBFI Monitor*, No 8, June 2023. They also happened to hold around 80% of bonds issued by euro area firms as of the third quarter of 2022, see Nicoletti, G., Rariga, J. and Rodriguez d'Acri, C., "Spare tyres with a hole: investment funds under stress and credit to firms", *Working Paper Series*, No 2917, ECB, 2024.

[27] See Brunnermeier, M.K. and Pedersen, L.H., "Market liquidity and funding liquidity", *Review of Financial Studies*, Vol. 22, 2008, pp. 2201-2238; Falato, A., Goldstein, I. and Hortaçsu, A., op. cit.; Fecht, F. and Wedow, M., op. cit.; Ma, Y., Xiao, K., Zeng, Y., op. cit.; Molestina Vivar, L., Wedow, M. and Weistroffer, C., "Burned by leverage? Flows and fragility in bond mutual funds", *Journal of Empirical Finance*, Vol. 72, 2023, pp. 354-380; Branzoli, N. and Guazzarotti, G., "Liquidity transformation and financial stability: evidence from the cash management of open-end Italian mutual funds", *Working Paper Series*, Banca d'Italia, 2017; and Nicoletti et al., op. cit.

5.3 Overview of existing macroprudential tools and supervisory architecture in EU legislation

5.3.1 Money Market Funds (MMFs)

Question 8. What are pros and cons of giving the competent authority the power to increase liquidity buffer requirements on an individual or collective basis in the event of system-wide financial stability risk? Under which other situation do you believe MMF liquidity buffers should be increased on an individual or collective basis by the competent authority? Please explain.

Empowering authorities to increase liquidity buffer levels could provide flexibility in targeting adequate liquidity levels across cohorts of MMFs, though priority should be given to making MMFs more resilient at EU-wide level. In principle, introducing the tool outlined in the consultation document would allow for regulatory flexibility in a changing risk landscape over time, enabling authorities to tailor ex ante liquidity requirements. However, if the primary means of raising liquidity levels of MMFs is by granting such powers at the national level, this could create potential for regulatory arbitrage between jurisdictions and generate spillover effects across the EU.

Therefore, to enhance the resilience of EU private debt MMFs, legislative changes should prioritise higher overall liquidity requirements, such as those proposed by the ESRB's recommendations on MMFs and ensure that the buffers are usable in times of market stress.[28] Sufficiently high overall liquidity requirements for MMFs, especially for funds that invest in relatively less liquid instruments, would reduce the market-wide impact from MMFs in need of liquidity during times of stress. It would also help to make the funds more resilient to large outflows. Such increased liquidity requirements would improve the liquidity function of MMFs and should aim to close the regulatory gap between the EU and the United States and United Kingdom.

If liquidity requirements were set at adequate levels in line with the ESRB recommendations, it might not be necessary to grant authorities additional powers to increase liquidity buffers on an individual or collective basis in the event of system-wide financial stability risks. Given the narrowly defined business model of MMFs and to avoid regulatory arbitrage, it is important for any liquidity requirements to be set at the EU level in a harmonised way. Currently there is no commonly defined framework for authorities to increase liquidity requirements for MMFs across the EU.

[28] See ESRB, Recommendation of the European Systemic Risk Board of 2 December 2021 on reform of money market funds, 2020.

There could be a role for authorities to encourage fund managers to make use of the buffers in times of stress and provide guidance on rebuilding buffers (e.g. by fund type and currency) following a stress event, thus enhancing buffer usability. Any such guidance should reflect macroprudential considerations and should not be linked to idiosyncratic vulnerabilities of individual funds. It should also be coordinated at EU level, involving ESMA in coordination with relevant national authorities.

If a flexible tool for MMF liquidity buffer requirements was considered regardless, it would seem appropriate that ESMA receives additional powers to increase liquidity buffers across the EU, in coordination with national competent authorities (NCAs). In addition, such a tool should only be used pre-emptively and not in response to a stress event. Imposing higher liquidity requirements during or after a systemic event could have unintended consequences – for instance, if funds need to raise liquidity while investor redemptions increase, adding to liquidity pressures in a procyclical manner.

Question 11. Do you believe that the proposed enhancements to the stress-testing framework listed above are sufficient to identify and mitigate liquidity risks effectively? If not, what specific elements would you suggest including in the strengthened supervision and remediation actions for detecting liquidity risks?

Overall, the proposed enhancements to the stress-testing framework would be welcome, although the effectiveness of these enhancements would depend on their detailed implementation.

- From a macroprudential perspective, more detailed information on the investor base is crucial, as it can signal potential risks of simultaneous investor redemptions. While understanding concentration risk within a single MMF is important, it is equally essential for NCAs to aggregate holdings of the same investor across multiple MMFs. Investor liquidity demands could force multiple MMFs to sell assets simultaneously, potentially causing market-wide stress.

- Enhanced supervision and remediation actions are important for mitigating risks before they materialise. Ongoing evaluation of these measures to ensure their effectiveness and modify or remove any that are counterproductive is equally important.

- While minimising the reporting burden for MMFs is important, supervisors must be able to assess stress test outcomes and conduct independent analyses to evaluate risks. Therefore, it is crucial to report MMF exposures at the ISIN-level on at least a quarterly basis. Synergies could be leveraged with existing data reported by institutions under the Eurosystem's Securities Holdings Statistics.

- Combining MMF asset holdings, whose coverage is national across central banks, with investor base data (European coverage for all central banks) is

crucial for assessing fire sale risks. Effective macroprudential assessment requires enhanced data sharing among EU NCAs to avoid overlooking significant connections and gaps. This is particularly important as risks often stem from cross-border market participants.

In summary, while the proposed enhancements are positive, their success will depend on their detailed implementation, comprehensive data collection, effective cooperation among authorities and the availability of other risk management tools. Moreover, while stress testing will play an important role in identifying liquidity risks, it will not be enough in itself to address these risks. Regulatory changes, as set out in the ESRB's Recommendation of 2 December 2021 (ESRB/2021/9) will be needed to build up the ex ante resilience of MMFs and address risks before they materialise.

Question 12. What are the costs and benefits of introducing an EU-wide stress test on MMFs? Should this stress test focus mainly on liquidity risks?

Introducing an EU-wide stress test for MMFs could offer significant benefits. MMFs play a vital role in money markets and the transmission of monetary policy, so the benefits of such an exercise would extend beyond financial stability assessments. The MMF sector has several unique characteristics, such as high portfolio overlap, substantial market footprint and the low liquidity of the markets that MMFs invest in. In this context, an EU-wide stress test may serve as a tool to help highlight common vulnerabilities within the sector and potentially incentivise MMFs to address these issues more effectively.

However, experience with stress tests in other sectors (i.e. banks, insurance firms, pension funds and CCPs) has shown that these exercises are resource-intensive. The eventual cost of conducting such a stress test will depend on the design and scenarios chosen. Therefore, before considering an EU-wide stress test for MMFs, it is essential to clearly define the objective and added value that would be obtained beyond the current stress-testing guidelines for MMFs. To accurately assess the overall resilience of MMFs to common shocks and the capacity of underlying markets to absorb sales, the unique amplifiers and interactions within the sector must be considered. Therefore, it is important to take a system-wide view and clarify the interlinkages between MMFs and their common asset holdings.

Liquidity risk should be a primary focus of the stress test, with an emphasis on system-wide liquidity rather than the liquidity position of individual funds. Additionally, such an exercise would also usefully consider the interaction with leverage-related risks on the investor side, as spikes in liquidity needs among investors in response to margin calls are often met by selling MMF shares, sometimes during stressful conditions. The proposal set out in Question 11 to enhance reporting by incorporating institutions' own stress test data, based on MMF guidelines within a common reporting template, could already be effective in significantly improving the provision of adequate information.

Overall, there is merit in an EU-wide stress test, although given the high costs involved, the objective and added value of such a stress test should be clearly defined beforehand. More broadly, the Eurosystem would place greater priority on conducting system-wide stress tests in Europe, given their macroprudential benefits.

5.3.2 Other open-ended funds (OEFs)

Question 23. When monitoring or using results of liquidity stress tests, are you able to timely collect underlying fund data used by managers and the methodology used for the simulation? Are there other aspects that you find very relevant when monitoring the stress tests run by managers?

Stress tests that are relevant to the funds sector fall into three categories:

- individual, fund-level stress tests;
- sector-wide stress tests;
- system-wide stress tests.

From a macroprudential perspective, system-wide stress tests are the most relevant, followed by sector-wide stress tests. Sector-wide stress testing provides a better understanding of the liquidity dynamics and fault lines of cohorts/sectors of the wider industry. As such stress tests are focused on individual entities or groups of entities, they are not sufficient in and of themselves to shed light on the potential evolution of system-wide dynamics during stressed market conditions. System-wide stress tests, in contrast, are more comprehensive, as they seek to explore the responses of a diverse set of market participants to adverse shocks and the potential implications of such collective responses for the functioning of core markets. They can help to identify potential shock transmission channels and key macro-financial linkages across a range of entities, activities and markets. Therefore, system-wide stress tests allow for a better understanding of the propagation of shocks in light of financial vulnerabilities across NBFIs.

System-wide stress testing is still at an early stage of development and there are various data and methodological challenges to overcome. However, progress is being made on these fronts across multiple public institutions, both inside and outside of the EU, and this has been broadly improving the standard of system-wide stress testing. From a macroprudential perspective, system-wide stress testing should be the focus and efforts should be made within the EU to more formally design and conduct EU-level system-wide stress tests in the coming years.

Fund-level stress testing focuses more on the liquidity and risk management positions of individual funds. At this level, the supervisory focus is more on the outcomes of the stress-testing exercise(s) and the overall risk management

framework of the fund manager(s). Such exercises enable authorities to gain access to – and collect – the underlying fund data used by managers, as well as the methodology employed for the simulation. Market authorities typically have access to this information, unlike most central banks. This raises the question of data sharing across authorities, both within a jurisdiction and between jurisdictions. Currently, several central banks in the euro area face challenges in collecting the underlying fund data used by managers in a timely manner. Gaining access to such information could play an important role in identifying data needs and closing data gaps. In that regard, stress tests conducted by fund managers would enable supervisors and managers to collect granular data on the liquidity of the assets in their portfolio as well as the level of leverage that could end up magnifying the liquidity risk, in order to better assess risks and calibrate policy tools appropriately.

While stress tests at fund level focus on individual funds, the information collected can still be valuable for broader supervisory purposes and for monitoring systemic risks. For instance, by analysing stress test results from multiple funds, supervisory authorities can identify common vulnerabilities across a fund cohort or asset class that may warrant supervisory follow-up or even macroprudential intervention.

Overall, stress tests can be useful in obtaining a holistic and comprehensive understanding of the NBFI sector. To make stress tests more effective and informative for supervisors, consideration could also be given to introducing additional requirements based on the results obtained. Nevertheless, for macroprudential purposes, the focus should be on developing a European system-wide stress tests in order to deepen regulators' collective understanding of systemic vulnerabilities, including those potentially stemming from NBFIs.

Question 25. What are the main benefits and costs of introducing a stress test requirement at the asset management company level and how could this be organised?

As outlined in our response to Question 23, there are three types of fund-related stress tests, namely fund-level, sector-wide and system-wide. Generally speaking, each type of stress test has different benefits and costs. Benefits include early identification of common vulnerabilities, enhanced risk management, enhanced market discipline and better understanding of the environment in which entities operate and the materiality of externalities. Potential costs include implementation costs (for authorities and market participants) as well as potential costs due to model risk (as in any analytical exercise).

The purpose of stress tests at the level of the asset management company should be more clearly defined. Asset managers' balance sheets are not consolidated in the same way banks' balance sheets are. Asset management companies oversee a range of individual funds that are managed by individual fund managers (or funds can be grouped under one manager). Therefore, when a shock materialises, the impact is not transmitted equally across individual funds under the

asset management company, in the same way that a shock is transmitted across the balance sheet of a bank. Funds under a single asset management company have different investment strategies and are managed by different managers, each with different investor bases. In contrast, a bank's balance sheet is managed centrally and therefore will respond as a single entity to the shock, whereas different funds within a single asset management company will react differently based on the factors outlined above.

While funds managed by the same entity are legally segregated, they may be exposed to common reputational and operational risks. In that context, stress tests at the level of the asset management company could prove beneficial in identifying reputational and operational vulnerabilities that might affect a large number of funds connected by the same managing entity, thus acting as a propagation mechanism between funds.

However, the key focus of stress testing for macroprudential purposes should be to identify cohorts of funds that exhibit similar risks and have similar investment strategies, even if these funds are across multiple asset management companies. This is because it is the collective behaviour of those funds exhibiting similar characteristics that may generate systemic risk, not funds that happen to be within the same asset management company. Focusing on cross holdings by looking at funds-of-funds could also be useful. Systemic risk does not arise at the asset manager level because the fund range is not managed and controlled centrally by the asset management company.

As outlined above, the Eurosystem should place greater priority on conducting system-wide stress tests in Europe, given their macroprudential benefits.

5.3.3 Other NBFIs and markets

Question 26. What are your views on the preparedness of NBFIs operating in the EU in meeting margin calls, and on the ways to improve preparedness, taking into account existing or recently agreed EU measures aimed at addressing this issue? Please specify the NBFI sector(s) you refer to in your answer?

The need to meet margin and collateral calls led to severe liquidity pressures across various types of NBFIs in recent stress periods.[29] This included, in particular, (i) the March 2020 market turmoil,[30] (ii) the failure of Archegos in 2021,

[29] See the box entitled "Non-banks' liquidity preparedness and leverage: insights and policy implications from recent stress events", *Financial* Stability Review, ECB, May 2023.

[30] See the special feature entitled "Derivatives-related liquidity risk facing investment funds", *Financial Stability Review*, ECB, May 2020; the box entitled "Interconnectedness of derivatives markets and money market funds through insurance corporations and pension funds", *Financial Stability Review*, ECB, November 2020; Ghio, M. et al., op. cit.; and the BCBS-CPMI-IOSCO report entitled Review of margining practices.

(iii) the energy market turmoil in 2022[31], and (iv) the UK gilt market turmoil.[32] In several instances, central banks implemented extraordinary policies with a view to stabilise markets and limit contagion. These episodes illustrated how liquidity risks can interact with vulnerabilities related to synthetic leverage and margin and collateral calls. Therefore, authorities should aim to jointly assess such risks to identify possible overlaps, interlinkages and interactions between the different sources of risk.

Despite these recent stress periods, liquidity risks faced by NBFIs from margin and collateral calls are not robustly captured by EU requirements, though certain current reforms aim to close some of the existing gaps. The reviews carried out under Solvency II and IORP II are now also looking at introducing specific references to liquidity risks arising from margin and collateral calls. Furthermore, Article 48(2) of the AIFMD Level 2 Regulation requires fund managers to regularly conduct stress tests under normal and exceptional liquidity conditions. This allows the manager to assess the liquidity risk of each fund under their management, covering market risks and any resulting impact, including on margin calls, collateral requirements or credit lines. At the same time, ESMA has published Guidelines on liquidity stress testing for funds, although there are no further details on how to conduct these stress tests and, more importantly, no further requirements on liquidity risk management and governance in relation to margin and collateral calls.[33]

Against this backdrop, the (forthcoming) FSB policy recommendations on strengthening NBFIs' liquidity risk management and governance related to margin calls,[34] as well as collateral management practices – once finalised – should be fully implemented in the EU in a timely manner. It is important that NBFIs rely on diverse and reliable sources of liquidity and collateral to meet margin and collateral calls. Stress testing and scenario design should be used to enhance the governance and calibrate policy measures. In addition, mitigating the liquidity risks that arise from spikes in margin and collateral calls will ease liquidity pressures on the broader financial system, including MMFs, which are often used for cash management purposes.[35]

More specifically, the (forthcoming) FSB recommendations should be implemented in the EU through both entity- and activity-based regulations, including as part of ongoing EU reforms:

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[31] See the special feature entitled "Financial stability risks from energy derivatives markets", *Financial Stability Review*, ECB, November 2022.

[32] See Chen, R. and Kemp, E., "Putting out the NBFIRE: Lessons from the UK's Liability-Driven Investment (LDI) Crisis", *IMF Working Papers*, IMF, 2023, and Dunne, P. et al., "Irish-Resident LDI Funds and the 2022 Gilt Market Crisis", *Financial Stability Notes*, Vol. 2023, No 7, Central Bank of Ireland, 2022.

[33] The same also applies to the *ESMA guidelines on Liquidity Management Tools in UCITS and AIFs*, which cite liquidity risks stemming from margin calls in paragraphs 58 and 59 as examples of factors that may affect liquidity risk (V.1.13 "LST on other types of liabilities").

[34] See FSB, Liquidity Preparedness for Margin and Collateral Calls: Consultation Report, 2024.

[35] See DNB-AFM, Liquidity risks of pension funds' derivatives portfolios under various stress scenarios, 2024; the box entitled "Interconnectedness of derivatives markets and money market funds through insurance corporations and pension funds", *Financial Stability Review*, ECB, November 2020; and Ghio, M. et al., op. cit.

- mandating liquidity stress testing and enhancing risk management practices and requirements on the level and diversification of liquidity sources could be achieved via entity-based regulation (AIFMD, UCITS, Solvency II, IORP II);
- activity-based regulation (EMIR and SFTR) could possibly bring into scope those entities that are currently outside the regulatory perimeter (e.g. commodity traders and family offices);
- system-wide liquidity stress testing would complement stress tests conducted by market participants.

Question 30. What would be the benefits and costs of creating a framework or a label in EU legislation for certain money market instruments (such as commercial papers) to increase transparency and standardisation? Should the scope of eligible instruments to such framework/label be aligned with Article 3 of Directive 2007/16/EC? If not, please suggest what criteria would you consider for identification of eligible instruments.

While there is no unified market within the EU for money market instruments, such as commercial paper (CP) and certificates of deposits (CDs), a label known as Short-Term Euro Paper (STEP), which is managed by EMMI, already exists.[36] STEP is a voluntary label, launched in 2006, to encourage common practices and standards for the documentation of short-term paper programs, although it is not used widely enough to ensure standardisation and enable a reliable comparison among the various commercial paper programmes used by EU issuers. Still, it promotes transparency, through the standardised disclosure of all mandatory documentation and the disclosure of specific data related to the programme's activity.

The STEP initiative has succeeded in bringing more transparency and standardisation across EU markets for both CP and CDs. The Eurosystem already supports the STEP format as, since 2007, STEP-labelled issuance is eligible collateral for refinancing operations, provided the paper is compliant with the provisions of Guideline EU 2015/510 on the implementation of the Eurosystem monetary policy framework (General Documentation Guideline). The STEP label represents around 200 issuance programmes from various types of issuers and covers roughly €400 billion in outstanding securities. Even so, it would seem that in some cases, potential issuers may be reluctant to provide annual reports, which is a requirement to obtain the STEP label, even though this information is in the public domain. In such cases, issuers may find it easier to approach banks directly regarding the respective financing, instead of issuing under the STEP label.

However, the use of STEP as a label is not limited to EU issuers and EU markets only. It may also be granted to CP/CD programmes issued outside the EU

[36] See the Short-term European Paper (STEP) homepage on the ECB's website.

(such as ECP/ECD programmes). In practice, ECP/ECD issuances account for a significant portion of the roughly €400 billion of the STEP label outstanding. In addition, EU CP/CD markets remain relatively opaque and highly fragmented, and their overall size is smaller compared to that of the US CP market. The opaqueness of CP and CD markets could increase illiquidity due to information asymmetry among participants. A lack of transparency, including on secondary market transactions, might also discourage investor participation in times of stress, due to pricing dislocations and information asymmetry. Overall, transparency could be improved through more efficient trade processing, as well as increased and enhanced regulatory reporting.

The regulatory framework for issuing CP and CDs varies across EU jurisdictions, as does the market data coverage. The Paris-based Negotiable European Commercial Paper (NEU CP) market is the only market in the EU subject to a legal framework for standardised content and presentation of information on issuers and programme description. It is also the only market in the EU that provides public information, through information memoranda disclosure and regular statistical publications, about key variables, such as volumes, interest rates and maturities.

Against this backdrop, increasing the integration of CP/CD markets in the EU would be welcome. Any such initiative should capitalise, as much as possible, on prevailing best practices within the European Union (e.g. the STEP label, the NEU CP market), aim for a high degree of ownership by market participants/market associations and also carefully address the risk of regulatory arbitrage between EU and non-EU markets (especially those with a softer regulatory framework).

The scope of eligible instruments should not necessarily be restricted to that of Article 3 of Directive 2007/16/EC. There is market demand for instruments with maturities in excess of 397 days that are legally different from bonds. For instance, in the EU, aside from NEU CP programmes, issuers may opt for NEU MTN (medium term notes) programmes. NEU MTN have the same features (technically and legally) as the NEU CP, except for the maturities, which exceed one year (without restrictions). The NEU MTN outstanding volume is currently at around €40 billion.

Question 31. Would the presence of a wider range of issuers (notably smaller issuers) to fund themselves on this market, and therefore diversify their funding sources, be beneficial or detrimental to financial stability?

The presence of a wider range of issuers – and notably smaller ones – would be welcome, as it could increase the depth of CP markets and provide a source of diversification both for issuers (in terms of short-term liabilities) and investors (in terms of portfolio structures). A diversified range of issuers could be expected to make a market more liquid and may reduce its propensity to sudden stops. Even today, nothing in principle prevents smaller issuers from issuing, in view of (i) the relatively low minimum issuance sizes (€100,000 for STEP, for example);

and (ii) the fact that issuers already have, via MMFs, a good level of access to retail investors.

In a wholesale market, by contrast, small names may pay a premium compared to the interest rate offered on loans as part of their individual relationship with their bank. Further, given the preference/setup of the most active investors in the market (such as MMFs), issuers must have sufficient scale to operate successfully in this market. Investors are more willing to perform significant transactions, and are more likely to trade, with issuers that are regularly active in the market, mainly because they are incentivised by the EU regulatory framework (MMFR) to rely on internal credit assessment methodologies (before searching for an external rating). In order to address information asymmetries, smaller issuers should also have appropriate corporate governance structures in place and an adequate level of disclosure (e.g. audited financial statements) and be ready to accept some costs associated with market funding (e.g. external rating and/or guarantees).

Having diversified sources of funding (short-term or long-term) enables companies to better manage the quantity and the cost of accessing liquidity, making it a further positive resilience factor, all else being equal. However, smaller companies are less able to cope with both the process and the potential cost of issuance. Overall, the main benefit of smaller issuers securing funding on short-term markets should come from their ability to cope with the process for resilience purposes and to provide enough information to investors regarding their ability to reimburse funds.

However, corporate issuers may be exposed to dry-up risks, which can happen in this market. Credit lines, on the other hand, usually provide a more reliable liquidity insurance, by transferring funding needs to banks.[37] Overall, however, a more diversified funding base for corporate issuers is likely to be beneficial for funding resilience of funding of corporate issuers.

Question 32. What are your views on why euro-denominated commercial papers are in large part issued in the 'EUR-CP' commercial paper market outside the EU? What risks do you identify? Please provide quantitative and qualitative evidence, if possible.

The London-based euro commercial paper/certificate of deposit (ECP/CD) market is a very large and deep market with €996 billion outstanding as of the end of June 2024. The legal framework governing the ECP/CD market is well-known and largely viewed as favourable and flexible. This attracts both issuers and investors, rendering the market liquid in foreign currencies also (e.g. USD ECP). In comparison, EU CP markets are based on documentation anchored in local legislation, allowing only limited possibilities for change. In contrast, certain large EU

[37] See Amberg, N., "Do Credit Lines Provide Reliable Liquidity Insurance? Evidence from Commercial-Paper Backup Lines", Working Paper Series 425, Sveriges Riksbank, 2023.

issuers choose to access the ECP/CD market using their local legislation, instead of UK law. Therefore, the perpetuation of fragmentation and the fear of potential legal complexity (e.g. different bankruptcy legislation) could end up alienating issuers and investors in the EU.

According to the FSB report of May 2024 on short-term funding markets (STFMs)[38], the NEU CP market had a total of €315 billion outstanding as at the end of June 2023, while the other European markets represent around €130 billion outstanding as of March 2023.

Several factors may explain the importance of the ECP/CD market for issuers located outside the EU, issuing euro-denominated instruments:

- This market has long been considered the only international market in Europe (the NEU CP market was opened to international issuers relatively recently in 2016) and thus benefits from a very large and diverse investor base, as well as a dominant position in terms of market activity. In that perspective, it may also benefit from a positive bias in terms of perception from dealers operating in the market.
- Its post-market is operated by two International CSDs (Euroclear Bank and Clearstream Banking Luxembourg).
- This market is very flexible in terms of market entrance as it is not framed by a set of legal/regulatory provisions and there is no requirement to regularly update information memoranda, or engage in market activity reporting.
- Securities issued on the ECP/CD market may be eligible as ECB monetary policy collateral if they are STEP-labelled (and provided that they comply with all Eurosystem criteria).
- There appears to be a perception gap in relation to the EU's only international market, the NEU CP market: it is often wrongly considered by some market participants to be a purely domestic market.[39]

There are some risks associated with the dominance of the ECP/CD market, compared to the best standards in place within the EU (NEU CP market for instance):

- The ECP/CD market is opaque, in the sense that freely available market statistics are scarce. Issuers and issuances may be tracked via private data sources, but with no certainty regarding their quality. This complicates market monitoring by the authorities, especially in times of stress. There is also no transparency regarding issuance programmes, as information memoranda are not made freely accessible to the public via centralised source.

[38] See FSB, "Enhancing the Functioning and Resilience of Commercial Paper and Negotiable Certificates of Deposit Markets", 2024.

[39] As of May 2023, 15% of the amount outstanding is from non-domestic issuers, of which 4% is from outside of the EU.

- The issuance of ECP/CDs does not rely on any regulatory framework.

Question 33. What could be done to improve the liquidity of secondary markets in commercial papers and certificates of deposits?

The lack of data on the primary market in certain jurisdictions, and on secondary markets in almost all jurisdictions, impairs our ability to measure their depth and activity.

There are certain structural factors limiting the scope for a more liquid CP/CD secondary market:

- The CP/CD market is a buy and hold to maturity market,[40] in which investors usually keep securities until maturity, and only rarely are these securities sold back before maturity by investors looking to either shorten or lengthen the duration of their exposures;
- CP and CD are short-term liquidity management tools used by issuers (needing short-term funds) and investors (looking to park liquidity) and therefore, unlike bonds, are not typically traded in secondary terms;
- The limited secondary market activity is not specific to fragmented European CP markets (ECP/NEU CP, domestic CP), as this feature of the CP market is also observed in the United States, where the outstanding amounts are far higher than in Europe.

The absence of secondary market liquidity is felt more acutely in periods of stress, like in March 2020, where a number of investors liquidated significant parts of their CP holdings in order to obtain cash, given the prevailing preference for holding cash amid significant market uncertainty. It should be noted that, in periods of acute stress, very liquid markets – such as those dealing in euro area government bonds (EGBs) or covered bonds – may also become illiquid, despite market-making commitments, solid market liquidity in normal times or the widespread usage of electronic trading platforms. It is unclear whether market-making commitments would necessarily address stress episodes, while they would certainly make issuance more expensive in normal times which, for a low margin business, would be an issue to consider.

While the potential for significantly improving CP/CD market liquidity appears relatively limited, the following measures may be contemplated, some of which may improve market microstructure:[41]

[40] See Kacperzyk, M. and Schnabl, P., "When Safe Proved Risky: Commercial Paper during the Financial Crisis of 2007-2009", *Journal of Economic Perspectives*, Vol. 24, 2010, pp. 29-50.

[41] These measures are mentioned in the FSB report on "Enhancing the Functioning and Resilience of Commercial Paper and Negotiable Certificates of Deposit Markets", May 2024.

- Having greater clarity on the legal framework or technical measures such as further format harmonisation/standardisation or rapid/automatic ISIN generation for tap issuance, similar to what already exists for NEU CP. All else being equal, more integrated CP/CD markets would facilitate the "circulation" of securities among investors after their issuance.

- Improving data availability on secondary markets. Currently, little, or no information is publicly available regarding transactions in the secondary market, thus making it harder for investors to assess the overall volume of transactions, the features of traded securities and so forth. The only way around this is to derive information on secondary market transactions by looking at holdings data. However, securities holding statistics (SHS) are not able to capture the whole market, particularly short transactions. Using portfolio holdings data from MMFs data is the only solution.

- Improving digitalisation and automation. The May 2024 FSB report on STFMs highlighted that digitalisation of documentation is not currently a widespread practice across markets, apart from in the NEU CP and Japanese markets. Increasing it could improve access to documentation to finalise transactions and help share information more quickly, allowing for a faster and more efficient issuance process. Moreover, CP and CD are usually traded on over-the-counter (OTC) markets featuring fairly unsophisticated technologies. All else being equal, developing trading venues could lead to better availability of market data and facilitate the matching of demand and supply.

- Increasing the sectoral diversification of the investor base, which would benefit CD and CP issuers. MMFs have a significant footprint in Europe. In France, MMFs hold a large share of both markets, with a significant home bias (around half of the CD market is held by French MMFs, according to Banque de France data at the end of 2022). This footprint and home bias are stronger in the case of the CP market. The US example underlines the benefits of enlarging the investor base: following the MMF reform in 2016, they invested less in CD and CP markets, thus reducing their footprint (now estimated at 25% according to the Bank for International Settlements), and other financial intermediaries were able to absorb issuers' funding in times of stress.[42]

Question 34. Considering market practice today, is the maturity threshold for 'money market instruments' (up to 397 days) in the Eligible Asset Directive 2007/16 sufficiently calibrated for these short-term funding markets?

Broadly speaking, short-term securities are money market instruments covering maturities up to one year. Longer-term paper relies on bond valuation techniques and involves other types of legal or risk structures (covered bonds, minimum requirement for own funds and eligible liabilities – MREL – issuances),

[42] See Aquilina, M., Schrimpf, A. and Todorov, K., "CP and CDs markets: a primer", *BIS Quarterly Review*, BIS, September 2023.

which are different from CP-CD. Increasing the maturity universe to expand the eligible universe would artificially mix instruments (money market instruments and notes or bonds) that are not easy to compare from a value perspective. As 397 days also happens to be the limit for short-term MMFs, changing the definition of money market instruments would also have knock-on effects in that regard.

The maturity debt distribution of corporate and financial issuers is different: on the NEU CP market, corporates rely more on short maturity buckets (usually between one and three months) in terms of outstanding volume, while banks extensively use maturities beyond three months, mainly for regulatory reasons (LCR and NSFR).

However, there is market demand for securities with maturities above one year, which bridge the gap between money market instruments and bonds: the NEU MTN (medium term note) market has an outstanding volume of around €40 billion, with an average maturity of four years, as of June 2024.

Question 35. Do you think there is a risk with the high concentration of this market in a few investors (MMF and banks)? Please elaborate.

(See also our answer to Question 31).

Concentration is already significant in this market, both from an issuer and investor perspective.[43] Such concentration is a source of vulnerability, as it can exacerbate illiquidity by limiting issuers' choice of options when it comes to accessing the primary markets, particularly during times of stress. The March 2020 market turmoil illustrates the vulnerabilities related to this specific market structure. Facing heightened outflows, MMFs looked to sell commercial paper to honour their investors' redemption requests. However, they encountered difficulties given the buy-and-hold nature of CP and the fairly limited secondary market. At the same time, corporate issuers saw their funding dry up, since their investor base is mostly composed of MMFs. The Eurosystem bought corporate CP to support the transmission of monetary policy by facilitating short-term issuance of corporates, which had the effect of alleviating tensions among MMFs.[44]

For issuers, the criticality of access to CP-CD markets is less pronounced than for long-term issuance, which achieves essential needs in terms of balance sheet optimisation (securitisation vehicles), long-term funding and compliance with regulatory requirements (MREL or NSFR in particular). Still, a broader short-term funding base would have significant diversification benefits for issuers.

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[43] See Georg, C., Pierret, D. and Steffen, S., "Similar Investors", *SSRN Working Paper Series*, 2023.

[44] See Fourel, V. and Schwenninger, A., "The impact of the PEPP on the corporate commercial paper market", Working Paper Series, No 946, Banque de France, 2024, and Breckenfelder, J. and Schepens G., "Non-bank liquidity provision to firms: Fund runs and central bank interventions", SSRN Working Paper Series, 2023.

For investors, the risk associated with market concentration can materialise in light of vulnerabilities stemming from liquidity mismatch. In times of stress, this can trigger first-mover advantage dynamics and widespread redemptions, thus calling for more prudent liquidity requirements for MMFs, as they are concentrated in the CP and CD market.

Question 36. How could secondary markets in these money market instruments attract liquidity and a more diverse investor base, while relying less on banks buying back papers they have helped to place?

In secondary markets, the main activity of dealers is limited to buying back their own CP or CD. The lack of a profit margin makes dealers less likely to act as brokers, which can generate illiquidity in secondary markets.

A more diversified investor base would face different financial constraints. For instance, while some investors might be willing to buy CP when MMFs are selling in order to honour their redemption requests, In the case of a systemic shock, this might not apply.

The introduction of a market-making commitment, similar to what exists for covered bonds (obligation to quote for executable quantities at reasonable bid-ask spreads during the entire trading session), is in theory feasible, but would be impaired in practice by a series of practical obstacles (legal frameworks, non-fungibility of ISINs, absence of liquid issuer curves) linked to the fundamental nature of this market, which is based on hold-to-maturity and the liquidity needs profiles of issuers and investors alike. Therefore, the usual benefits associated with higher secondary market activity to attract new investors would seem more limited.

A liquid market requires a liquid curve with homogeneous prices for a given level of risk, implying that issuers would also need to maintain activity through regular issuance. This appears difficult to achieve, as CP issuers are largely active upon demand from investors for a given maturity.

Structurally, the possibility of creating a liquid CP secondary market is also constrained by the fact that banks realise their funding needs first and foremost through longer maturities due to regulatory constraints (MREL, NSFR, etc.) rather than using money market instruments, which are used instead to cover short-term liquidity needs. Issuers other than banks (typically corporates) prefer to issue at short maturities to cover their short-term liquidity needs (up to one month mostly). Therefore, the business case for significantly developing secondary market activity in CP appears limited.

Question 37. What are the benefits and costs of introducing an obligation to trade on trading venues (regulated markets, multilateral trading facilities and organised trading facilities) for such instruments?

CP/CD are traded on OTC markets. This may be explained by the highly flexible nature of issuance programs (in terms of maturity, types of interest rates, currencies, etc.) and thus the "tailor-made" aspect of transactions. The negotiation process, which is typically intermediated by dealers, relies on fairly unsophisticated technology, such as phones or chat messages. The subsequent process (i.e. the confirmation, the ISIN code generation, the launch of the back-office process) can be highly manual and carry important operational risks and inefficiencies. There is no pre-trade transparency available for regulators.

Some electronic platforms have emerged in recent years, with different business models, meaning various degrees of integration, and with some of them being regulated and providing post-trade services, while others are not. While the use of these tools remains limited, they provide some valuable functionalities to their customers by helping to increase speed of execution, operational efficiency and transparency. The functioning of electronic platforms is inclusive (all market participants can be embedded, including dealers) and flexible when it comes to the structure of the instruments that are traded, and may also allow for informal communications between market participants.

In this respect, the obligation to trade on trading venues would be a further step that could bring some advantages in terms of modernisation of market infrastructures and practices, thus improving robustness, security and efficiency. The benefits of mandatory trading on a regulated trading venue would also include enhanced price discovery by investors, which might make the market more liquid. The use of ESMA-recognised MTFs and OTFs would also bring more transparency for regulators, which could support market monitoring, especially in times of stress. This increased transparency could also facilitate the valuation of CP/CD eligible as monetary policy collateral.

However, there are important caveats to imposing such an obligation:

- The first relates to the risk of increasing EU market fragmentation (and reducing market liquidity) in case of the co-existence of multiple trading venues (generating costs for market participants in markets where margins are currently low).
- The second concerns the risk of creating an uneven playing field between EU and non-EU jurisdictions. Should the EU opt for such an obligation, while third countries do not, issuers and investors may be incentivised, all else being equal, to delocalise their CP/CD trading activity outside the EU.
- Finally, the benefits for issuers remain unclear, as on a regulated venue/electronic platform, issuers lose the possibility to know why a certain investor has decided to liquidate a particular asset (under the current system,

when an investor wants to put back a paper, the dialogue with the issuer allows to understand the motivation of the sale).

Question 38. Can the possibility to trade on a regulated venue increase the chances of secondary market activities in a systemic event, for instance by acting as a safety valve for funds that need to trade these assets before maturity (especially when facing strong redemption pressures, like for MMFs)?

The possibility of trading on a regulated platform would increase the transparency and availability of information in the secondary market. A centralised, regulated venue could thus increase the likelihood of a secondary market for bigger issuers and might be beneficial in attracting investors.

However, during past episodes of major bond market stress, markets that were already structured around market-making commitments for dealers failed to provide continuous executable prices, such as during the GFC for covered bonds in Europe. This was even the case for liquid government bonds (BTPS, OAT or even the bund) in 2010-2011.

Therefore, it is unreasonable to expect that similar market-making commitments, to the extent that they would be adhered to in normal times, would fully guard against the risk of secondary market activity drying up during times of stress. The extent to which such regulated venues would support liquidity from issuers in normal times also remains unclear.

5.4 Excessive leverage

5.4.1 Open-ended funds (OEFs)

Question 43. What are other tools than those currently available under EU legislation which could be used to contain systemic risks generated by potential pockets of excessive leverage in OEFs?

Minimum haircuts for securities financing transactions (SFTs)

Repo financing is a key source of financial leverage, with haircuts in SFTs affecting the level of leverage in the NBFI sector. As such, the FSB recommended a minimum haircut framework to tackle leverage acquired via securities lending and repo transactions (i.e. SFTs). Implementing minimum haircuts

for SFTs following the FSB recommendations (i.e. for non-centrally cleared SFTs where financing is provided from banks to non-banks or from non-banks to non-banks against non-government securities) would be an important element of the policy response to NBFI leverage, acknowledging that repo volumes using non-government securities as collateral are relatively small in the EU.

UCITS that use VaR

UCITS funds using VaR should report and disclose regularly on their leverage, based on the commitment approach. Additionally, a discretionary tool to impose tighter leverage restrictions for these funds should be introduced. By using VaR, especially in the case of absolute VaR, UCITS funds might acquire leverage that is considered substantial according to AIFMD definitions. This leaves a gap in the regulatory toolkit to limit leverage-related risks in the investment funds sector. As a starting point, all UCITS funds using VaR should be required to report and disclose regularly on their leverage, based on the commitment approach. This would enable authorities to better monitor leverage use and potential risks to financial stability posed by this fund cohort. In addition, the ability to impose additional constraints on such UCITS funds – should they pose risks to broader financial stability – would enhance the existing macroprudential toolkit. This could be achieved through the use of the same power as exists now in the context of the AIFMD (Article 25) for those UCITS using the VaR approach, i.e. the ability to impose leverage or other restrictions on those funds (see also our answer to Question 45).

Additional activity- and entity-based measures

The ongoing FSB work on NBFI leverage may result in important additional recommendations to contain the build-up of NBFI leverage, e.g. by strengthening activity- and entity-based measures, stress testing, and public and private disclosure, including to leverage providers. Activity-based measures have the potential to limit leverage ex ante through appropriate margin and/or haircut requirements. Entity-based measures already exist in the EU under Article 25(3) of the AIFMD and there is a case for introducing a discretionary tool to impose tighter leverage restrictions for UCITS funds using VaR. These could be complemented by other measures, such as possible concentration limits for leverage providers such as banks in their capacity as prime brokers. It is also important to assess how the measures provided for in Article 25(3) of the AIFMD – as in the case of potential future entity-based measures – could be applied consistently across jurisdictions (see also our answer to Question 57).

Private disclosure

Enhancing private disclosure to leverage providers could allow them to better identify concentration risks and crowded trading strategies, and calibrate their

counterparty risk measures accordingly. Establishing minimum standards with regards to this type of disclosure could be an additional form of intervention to strengthen resilience to leverage-related vulnerabilities.

Discretionary mandates

Leverage is also used beyond regulated AIFs and UCITS, such as in discretionary mandates under MiFID or in family offices or sovereign wealth funds. Although the investment structure is different, the risks with respect to the use of leverage may well be similar. Where warranted, designing measures in such a way that they could be applied to any similar asset management activity, regardless of regulatory regime, would close an existing opportunity for regulatory arbitrage and address systemic risks more effectively (see also the cover note).

Question 45. While on average EU OEFs are not highly leveraged, are there, to your knowledge, pockets of excessive leverage in the OEF sector that are not sufficiently addressed? Please elaborate with concrete examples.

The assessment of systemic risk posed by investment funds with relatively high leverage is ongoing. Progress has been made internationally and in the EU, for instance, by the FSB assessment of leverage in hedge funds, linkages of leveraged NBFIs with prime brokers, hidden leverage and leverage among long-term investors.[45] The assessment of synthetic leverage poses particular challenges in terms of both identification and measurement, owing to a lack of internationally agreed definitions and risk metrics.[46]

There is a need to ensure that risk assessment frameworks and monitoring tools keep pace with the evolving financial system and the nature of systemic risk. Risks from NBFI leverage can rapidly shift from one part of the financial system to another. This implies that systemic risk must be monitored on a regular basis at sufficient frequency and, where relevant, that swift and adequate policy responses are taken.

Within the EU, Article 25 of the AIFMD has been triggered twice in recent years. Specifically, it has been applied in relation to GBP-denominated LDI funds in Ireland and Luxembourg, as well as property funds in Ireland, to mitigate risks stemming from high leverage and concentration in particular asset classes. That is not to say, however, that these are the only pockets of leverage that are potentially concerning from a systemic perspective.

UCITS funds pursuing complex, hedge fund-like strategies using the VaR approach to limit their global exposure to risk deserve particular attention (see

[45] See FSB, The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation, 2023.
[46] See IOSCO, Recommendations for a Framework – Assessing Leverage in Investment Funds, 2019.

our answer to Question 43). UCITS pursuing hedge fund-like strategies amount to roughly €150 billion according to ECB statistics (around 30% of the total EU HF sector in terms of AUM), while the "alternative" UCITS segment (including hedge fund-like strategies) could total some €300 billion in assets according to ESRB estimates.[47]

The VaR approach does not measure a fund's leverage per se, which has implications when it comes to UCITS leverage restrictions. The VaR approach measures the maximum potential loss due to market risk, with a given probability over a certain time period. The VaR of a fund reflects the riskiness of its assets, the amount of netting and hedging and the leverage involved in the trading strategies. This means that:

- the leverage of a fund proxied by using the VaR approach (especially for low risk-assets or arbitrage trading strategies) can be much higher than if leverage limits estimated under the commitment approach are used;[48]
- if the VaR approach is used, alternative UCITS funds might reach levels of leverage that are considered substantial according to AIFMD definitions (i.e. if leverage exceeds 300% of their NAV);
- those leveraged UCITS funds are not subject, pending the definition of the new harmonised UCITS reporting, to enhanced reporting requirements for "substantially leveraged" funds under the AIFMD, and authorities cannot impose leverage constraints under Article 25.

Addressing financial stability risks arising from UCITS funds that acquire substantial leverage by using VaR needs to be addressed. As a starting point, all UCITS funds using VaR should be required to regularly report and disclose information on their leverage based on the commitment approach. This would enable authorities to better monitor leverage use and gauge potential risks to financial stability posed by this fund cohort.

In addition, the ability to impose additional constraints on such UCITS funds – should they pose risks to broader financial stability – would enhance the existing macroprudential toolkit. This could be achieved through the use of the same power as exists now in the context of the AIFMD (Article 25) for those UCITS using the VaR approach, i.e. the ability to impose leverage or other restrictions on those funds.

[47] See the box entitled "The use of synthetic leverage by UCITS", EU Non-bank Financial Intermediation Risk Monitor 2024, No 9, ESRB, June 2024, pp. 18-21.

[48] Ibid.

5.4.2 Other NBFIs and markets

5.5 Monitoring interconnectedness

Question 52. Do you have concrete examples of links between banks and NBFIs, or between different NBFI sectors, that could pose a risk to the financial system?

Examples of such links between banks and NBFIs can be manifold. Below is a brief description of a few of the most prominent examples, some of which have featured in recent stress episodes.

Derivatives and repos are now an increasingly important channel of contagion between banks and NBFI. For example, hedge funds and other leveraged investment vehicles use the prime brokerage services offered by banks and other financial institutions. While these services include cash management or securities custody, they relate mainly to the provision of finance, either through SFTs or structures involving derivatives. Many of these derivative transactions are cleared bilaterally, implying high risk management requirements for the entities involved compared to centrally cleared derivatives. Moreover, business between banks and hedge funds appears to be highly concentrated on both sides, thus potentially posing concentration risk and default risk, which can trigger chain reactions and uncoordinated behaviour among banks.

- In the case of Archegos, total return equity swaps allowed the US-based family office to take concentrated, synthetic long positions in several underlying stocks. The counterparties for the transactions were several internationally active banks, including banks in Europe, which took synthetic short positions in the underlying assets, hedged by acquiring the corresponding securities. While these banks earned a fee as long as the underlying asset appreciated, they were also exposed to the risk of Archegos failing to meet the corresponding margin calls should the value of the underlying asset fall. When the underlying share prices began to fall sharply in March 2021, the extent of such counterparty credit risk was exposed, alongside Archegos' high leverage, triggering a widespread selloff by the prime brokers. This drove down the stock price further, inflicting larger losses on banks that were slower to sell and hitting their stock price sharply.[49] The fact that Archegos was registered as a family office meant that it was subject to fewer reporting requirements, which further highlights the importance of closing data gaps in order to adequately monitor the build-up of risks. More broadly, banks are becoming increasingly exposed to NBFIs as a result of direct trading in derivatives, with banks trading more than 20% of their gross notional derivative exposures with NBFIs. Such chain reactions and collective action problems (in the form of uncoordinated

[49] See Banco de España, "Archegos and Greensill: collapse, reactions and common features", *Financial Stability Review*, Issue 41, 2021.

behaviour among creditors as they close out their exposures) may have severe financial stability implications (see also our answers to Questions 2 and 3).

Short-term funding of banks in the money markets represents another relevant link that can act as a channel of contagion in times of stress. In particular, several European banks rely on institutional investment via MMFs for their short-term funding needs, through the issuance of CP and CDs.[50] This makes them susceptible to rollover risk, or even being cut off from funding altogether in the event of widespread MMF redemptions (e.g. following concerns over the credit quality of their portfolios), or an external shock affecting market liquidity.[51]

Bank affiliation of asset managers is a further area of concern. Such ownership structures may lead to reputational and step-in risks.[52] For example, banks may decide to provide liquidity and credit lines to an affiliated investment fund facing large outflows in order to avoid adverse reputational effects.[53] At the same time, the case of Credit Suisse showed that outflows at investment funds might be driven by concerns over the stability of the parent bank.

Indirect exposures through common asset holdings. Banks and NBFIs are often exposed to a common market segment (e.g. government or corporate bonds). An idiosyncratic shock to the NBFI sector that forces some intermediaries to sell securities in a particular market segment may lead to a devaluation of the securities held by banks not originally exposed to the shock. Evidence from the United States suggests that the externalities due to this channel can contribute significantly to the amplification of an initial shock.[54]

Regarding the links between NBFI sectors:

- **There is a pronounced interconnectedness between the insurance and pension fund sector, and also the investment fund sector in some jurisdictions.** This is both due to portfolio overlap and because insurance firms and pension funds are major holders of fund assets. In Germany, for instance, more than a quarter of investment funds are held by insurance corporations or pension funds as the only shareholder. In terms of risks caused by direct interconnectedness between insurers/pension funds and the investment fund sector, a distinction should be drawn between types of funds. Where insurers or pension funds invest in funds with only a single shareholder, first-mover incentives and the associated market implications due to run risks are absent, although potential widespread redemptions from insurance policies could still be transmitted to funds. Where they invest in funds with more than one shareholder, direct interconnectedness between the investment fund and the

[50] See Pérignon, C., Thesmar, D. and Vuillemey, G., "Wholesale Funding Dry-Ups", *Journal of Finance*, Vol. 73(2), 2017, pp. 575-617.

[51] See ECB, Recent stress in money market funds has exposed potential risks for the wider financial system, 2020.

[52] See ESRB, EU Non-bank Financial Intermediation Risk Monitor 2024, NBFI Monitor, No 9, June 2024.

[53] See Bagattini, G., Fecht, F. and Maddaloni, A., "Liquidity support and distress resilience in bank-affiliated mutual funds", *Working Paper Series*, No 2799, ECB, 2023.

[54] See Cetorelli, N., Landoni, M. and Lu, L., "Non-Bank Financial Institutions and Banks' Fire-Sale Vulnerabilities", *FRBNY Staff Reports*, 2023.

insurance/pension fund sectors can lead to contagion effects. If, for example, insurers' liabilities are hit by a shock during a crisis, such as an upsurge in life insurance policy lapses, insurers may abruptly redeem fund shares. Another case in point is the LDI episode, in which contagion resulted from UK pension funds' holdings of LDI funds when those funds had encountered difficulties in raising liquidity.[55] At the same time, insurers' fund holdings may exacerbate the effect of asset price shocks on their portfolios. Declining asset prices causing investment fund share redemptions can force fund managers to liquidate parts of their asset portfolios, thus exerting downward pressure on asset market prices. This may create negative externalities for those investors who remain in the fund and there is evidence that insurers tend to be the receiver of such externalities (see also our answer to Question 3).[56]

- **Cross-holdings of funds within the fund sector have been on the rise in recent years.** Cross-holdings can lead to an amplification of shocks when funds regard their holdings as liquid assets and move to liquidate these to bolster their own liquidity, such as in response to expected redemptions.[57] In addition, fund holdings may turn out to be less liquid than previously expected as stress spreads through the sector, potentially exacerbated by collective behaviour (correlated strategies across funds) and depending on assets and liquidation needs during the stress event, potentially giving rise to liquidity illusion. Where funds are held across borders, a lack of granular data may in turn make it harder for authorities to monitor the related risks.

Question 53. What are the benefits and costs of a regular EU system-wide stress test across NBFI and banking sectors? Are current reporting and data sharing arrangements sufficient to perform this task? Would it be possible to combine available NBFI data with banking data? If so, how?

There are three main benefits of running a regular EU system-wide stress test (SWST):

1. Such an exercise would quantify channels of shock propagation between NBFIs and banks. Regulators and market participants know that such channels exist, although they are hard to assess and quantify.[58]

2. It would enhance transparency by releasing aggregate exposures and insights on market resilience from the stress-testing exercise. This would allow market participants to better anticipate interconnection risks between NBFIs and banks.

[55] See Chen, R. and Kemp, E., op. cit.

[56] See Fricke, D., Jank, S. and Wilke, H., "Who creates and who bears flow externalities in mutual funds?", *Discussion Paper*, No 41, Deutsche Bundesbank, 2022.

[57] See Fricke, D. and Wilke, H., "Connected Funds", *The Review of Financial Studies*, Vol. 36, Issue 11, November 2023, pp. 4546-4587.

[58] See Sydow, M. et al., "Shock amplification in an interconnected financial system of banks and investment funds", *Journal of Financial Stability*, Vol. 71, April 2024.

3. By improving data transparency and regularly running such exercises, regulators could gain additional insight regarding the adequacy of existing NBFI regulation and the need for a macroprudential perspective.

By construction, SWST exercises stress several types of intermediaries present in the financial system (including banks, investment funds, insurers, CCPs and pension funds). Including a range of diverse sectors in a single stress test will result in a higher degree of complexity. These exercises require the involvement of experts from different fields, as these various categories of intermediaries are subject to different regulatory frameworks and have different investment habits, and solvency and liquidity characteristics. Furthermore, SWSTs may require significant data inputs, building on non-harmonised reporting requirements. By definition, bottom-up features would require the involvement of a number of financial intermediaries. Lastly, such exercises require the development of a common SWST methodology at the EU level aimed at assessing the relationships among the various sectors involved, which is currently a work in progress.

Current data access and/or data sharing agreements would need to be enhanced to perform an SWST. SWST exercises may require granular holding data at the euro area or EU level in order to capture European investors' footprint in stocks, bonds, derivatives and repos, and because of high cross-border interconnectedness. For instance, SHS data at the investor level for insurers and investment funds would be one necessary source of key data. Other key datasets would include regulatory datasets on NBFI balance sheets such as those collected under the AIFMD, UCITS, MMFR and Solvency II. It would also be useful to increase EMIR data quality on derivatives and SFTs to increase the authorities' understanding of banks/NBFI interlinkages. Collecting and integrating such data and making them available to authorities involved in an SWST would be an essential input when running the exercise.

Currently within the EU/euro area, regulators may attempt to combine some NBFI data with banking data by relying on commercial or national databases for investment funds and insurers, and also on SHS-G and AnaCredit (security and loan-level holdings by banking group). However, commercial databases typically suffer from coverage gaps and/or other data quality issues, making them less suitable than regulatory data for carrying out the exercise. Legal restrictions should also be considered and may hamper the use of confidential data.

In short, while conducting a fully-fledged European SWST would be complex from an operational standpoint, the benefits in terms of enhanced financial stability assessments and transparency would outweigh the costs.

Question 54. Is there a need for arrangements between NBFI supervisors and bank supervisors to ensure timely and comprehensive sharing of data for the conduct of an EU-wide financial system stress tests? Please elaborate.

An SWST at the EU level should involve diverse sectors − banks, investment funds (including MMFs), pension funds, CCPs and insurers − and would entail the use of granular data on all of them (see our answer to Question 53). To reflect the interconnected nature of the European financial system, the SWST would mean stress testing several entities in different Member States simultaneously. Currently, the European framework does not give EU authorities sufficient access to the relevant datasets (which often do exist) and therefore falls short of the mark in ensuring timely and comprehensive sharing of these data within and across jurisdictions without dedicated arrangements.

Legal amendments and further operational arrangements would be needed to improve data access and data sharing within jurisdictions. The institutional arrangement for the supervision of banks, insurance corporations and funds varies across jurisdictions and typically entails a separation between the banking supervisor and the insurance/fund/market authority. This can complicate data sharing for two reasons: some data (i) may be considered sensitive and not intended to be shared under normal circumstances; or (ii) may not be collected in a consistent, systematic way and may therefore require extensive preparation before it can be combined with other data and used in the stress test.

Amendments to the law on data access and data sharing are also needed at European level. This would not only allow for the conduct of an EU – or at least a euro area-wide – SWST, but would also entail broader benefits for enhanced macroprudential oversight of the NBFI sector. Conducting an SWST would require data sharing between NBFI supervisors and bank supervisors not only within individual jurisdictions but also across countries. In the short run, agreements to share a snapshot of data at given reference dates may render the sharing of specific data possible, although more ambitious progress is needed over time regarding European data sharing regulations. While NCAs share some data with the ECB, ESMA and EIOPA, the latter are not always allowed to share these data with other NCAs or NCBs. For example, data transmitted to ESMA under Article 37(5) of the MMFR are not always accessible to other NCAs or NCBs; SHS are not available to national authorities of other Member States. Eurosystem NCBs should have access to relevant EU-wide databases under their monetary policy and financial stability mandates (e.g. data reported under AIFMD, MMFR, Solvency II and MiFID). Likewise, Eurosystem NCBs should share relevant statistical data on funds, such as the Money Market and Investment Funds (MMIF) quarterly returns, with regulatory authorities.

Arrangements to ensure that data are shared more consistently across competent authorities on a regular basis would benefit SWST exercises as well as broader macroprudential oversight of the financial system. The current data sharing framework is insufficient to ensure efficient cooperation, both in terms of

surveillance (during normal times) and when responding to crises (during stress events). In the longer run, better access to data would also support research and help to ensure a deeper understanding of the European financial system and its interactions. The following three points are important factors to bear in mind when considering the framework for data sharing:

- **Financial stability "gateway":** any information reported under AIFMD/UCITS, MMFR, Solvency II, MiFID/MiFIR and EMIR should be shareable on the specific grounds of financial stability (currently applies for "supervisory" purposes only).
- **Improved analytical capability:** if more data are gathered and shared, the data should then be used and such use should be demonstrated publicly.
- **Quality and coverage/frequency:** data quality needs to be improved, as there are areas of misreporting/non-reporting and coverage/frequency may need to be increased in certain areas.

5.6 Supervisory coordination and consistency at EU level

5.6.1 Open-ended funds (OEFs)

Question 57. How can we ensure a more coordinated and effective macroprudential supervision of NBFIs and markets? How could the role of EU bodies (including ESAs, ESRB, ESAs Joint Committee) be enhanced, if at all? Please explain.

An effective governance framework is an important building block for strengthening the macroprudential perspective in the regulation of NBFI. Due consideration should be given to the respective roles of macroprudential authorities at national level and of the European supervisory authorities (ESAs, especially ESMA), to ensure consistency both in the development and implementation of macroprudential policy tools.

ESAs are already helping to promote supervisory convergence in relation to the oversight of non-banks across the EU. However, it is important to enhance the supervisory architecture of EU capital markets to reflect and support the growing importance of the cross-border activities carried out by NBFIs and the increasing use of macroprudential powers at national level. This would help to ensure that NBFI remains resilient under stress and does not amplify systemic risk or generate cross-border contagion. For instance, while certain NBFI entities and activities are concentrated within a few Member States, they can pose systemic risks for other EU jurisdictions or the EU as whole. Moreover, a more active use of macroprudential powers at national level, if not properly coordinated, could lead to a fragmented macroprudential approach, regulatory arbitrage and an uneven playing field across

the EU. Therefore, effective policy coordination is needed to ensure that cross-border risks are addressed pre-emptively in a consistent way.

In this context, a clearer framework for policy coordination and standard-setting is required within the EU. Such an approach should ideally rest on common rules and standards across the EU, accompanied by coordinated supervisory action at EU level. Enhanced coordination and further supervisory powers for ESMA would help to ensure consistent treatment of risk, promote a level playing field across the EU and reduce the potential for regulatory fragmentation or arbitrage.

It is crucial that cooperation between European, national macroprudential authorities and national supervisory authorities should be strengthened also for the broader non-bank financial sector. Against this backdrop, two elements should be prioritised in the context of the macroprudential framework for NBFIs: (i) reciprocation and (ii) "top-up" powers.

- **Reciprocation:** Reciprocation is an important mechanism for guarding against cross-border leakage. Existing regulations, such as Article 40 of MiFIR, could provide a useful template for how reciprocation might work within the EU in the context of NBFI measures. Under such a framework, ESMA – having consulted the ESRB – would be required to assess whether a national measure proposed by one Member State should also be applied across the wider EU. Such a mechanism would strengthen the effectiveness of national powers, while guarding against the potential for regulatory fragmentation or arbitrage across the EU. For example, if an NCA were to implement leverage limits for a group of funds, the reciprocation mechanism would ensure that funds with a similar systemic risk profile in other Member States would also become subject to those limits, if deemed appropriate, given the nature and magnitude of the risks, when operating in that jurisdiction.

- **Top-up powers:** An additional mechanism to enhance coordination across the EU would be to grant ESMA (top-up) powers for specific macroprudential tools to address systemic risk across the EU. This type of power is relevant for NBFI due to the high cross-border component of the sector's activities. For example, if some funds or group of funds were judged to pose a systemic risk to an EU Member State, or to the EU as a whole, due to excessive leverage (or liquidity mismatch), ESMA – in collaboration with national macroprudential authorities and competent authorities and after consulting with the ESRB – should be given the power to request the implementation of leverage limits (or the new macroprudential tool for liquidity, as outlined above) or to "top-up" existing national measures.

Finally, data and information sharing should be enhanced to support such cooperation.

5.6.2 Other NBFIs and markets

Question 68. Are there elements of the FSB programme on NBFI that should be prioritised in the EU? Please provide examples.

In recent years, the FSB, working alongside global standard setters, has made significant progress by agreeing on a range of ambitious policies and recommendations that aim to make the NBFI sector, and hence our financial system, more resilient. Unfortunately, the implementation of some of these policies has been slow and uneven across jurisdictions. Implementing these recommendations would make the NBFI sector in the EU more resilient, which would be both welcome and necessary. It would also foster a level playing field across the NBFI sector, both within the EU and globally. A level playing field is needed to mitigate the risk of cross-border fragmentation, regulatory arbitrage and/or business reallocation, as well as cross-border spillovers stemming from globally interconnected entities and activities.

- The FSB's Thematic Review on Money Market Fund Reforms: Peer review report found that progress in the EU lags behind that of its key peers. For example, authorities in the United States recently raised the minimum liquidity requirements for all MMFs to 25% daily liquid assets and 50% weekly liquid assets, while in the United Kingdom, the authorities have proposed similar requirements for all MMFs in a public consultation; i.e. 15% daily liquid assets and 50% weekly liquid assets. This leaves private debt-focused MMFs domiciled in the EU less resilient to liquidity shocks in comparison. Moreover, for EU MMFs that invest in assets denominated in non-EU currencies, rules that diverge globally can create opportunities for regulatory arbitrage, while weaker resilience could also trigger spillovers to funding markets in jurisdictions outside the euro area. As outlined in the ESRB's recommendations on MMFs, there are a number of key MMF reform proposals that should be implemented in Europe.[59] These include, among others, increasing liquidity requirements for private debt MMFs and making liquidity buffers more usable.

- The FSB's Revised Policy Recommendations to Address Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds were published in December 2023 and should be swiftly and fully implemented in the EU. In addition to the measures envisaged in the AIFMD and UCITS review, further measures may be needed to ensure full compliance with the FSB's recommendations, especially for OEFs that invest in illiquid and less assets. First, the Commission and other regulatory authorities in the EU should encourage more consistent use of anti-dilution LMTs (or ADTs) through regulatory guidance. If this fails to generate a material increase in the use of ADTs as part of the day-to-day liquidity management of funds, including during times of stress, further legislative amendments may be required. This might

[59] See ESRB, Recommendation of the European Systemic Risk Board on Reform of Money Market Funds, 2021.

include mandating OEFs with exposure to less liquid assets to use ADTs, such as swing pricing or anti-dilution levies (ADLs), at all times, even on a partial basis. Second, relevant EU authorities should work on implementing the FSB's proposal on classifying funds based on asset liquidity. They should also require longer notice periods to enable closer alignment between the redemption terms offered and the liquidity of the liabilities of those funds that invest in less liquid assets (see also the cover note).

- Recommendations aimed at enhancing liquidity preparedness for margin and collateral calls are expected to be finalised by the end of the year (2024). The FSB's recommendations underscore the importance of robust liquidity risk management and governance practices and promote the use of liquidity stress tests to identify sources of liquidity strains and ensure proper calibration of diverse and reliable liquidity and collateral sources. Once finalised, it is important for these recommendations to be implemented in the EU within the timeframe agreed with the FSB.

- Adopting the FSB's minimum haircut framework for SFTs (originally published in November 2015 and last updated in September 2020) to manage leverage acquired via securities lending and repo transactions should help limit systemic risks associated with high leverage levels at NBFIs. Such a framework should be adopted in the EU in the form of sector-wide regulation (SFTR), while addressing the level playing field issues cited in the EBA's 2019 report, especially as regards the inclusion of non-bank-to-non-bank transactions.

- In addition, further policy proposals to address risks associated with NBFI fund leverage are expected to emerge from the work being carried out by the FSB. Further reforms might be needed at EU-level to strengthen the policy framework and address risks from NBFI leverage, along with coordinated global action.

- Initiatives aiming at tackling data-related challenges (access, quality, usability, sharing, etc.) should also be prioritised.

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