



Finance Watch

Making finance serve society

Systemic risk from shadow banking

Regulating communicating vessels and the spillover
of risk between banks and non-banks

A Finance Watch Report



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Abbreviations

AIF	Alternative Investment Fund
AIFM	Alternative Investment Fund Manager
AIFMD	Alternative Investment Fund Manager Directive. Directive 2011/61/EU of the European Parliament and of the Council of 08 June 2011, OJ L 174, 01 July 2011, pgs. 1–73
BCBS	Basel Committee on Banking Supervision
BIS	Bank for International Settlements
CER	Critical Entities Resilience Directive. Directive (EU) 2022/2557 of the European Parliament and of the Council of 14 December 2022, OJ L 333, 27 December 2022, pgs. 164–198
CFIMLs	Captive Financial Institutions and Money Lenders
CIV	Collective Investment Vehicle
CRD	Capital Requirements Directive. Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013, OJ L 176, 27 June 2013, pgs. 338–436
CRR	Capital Requirements Regulation. Regulation (EU) 575/2013 of the European Parliament and of the Council of 26 June 2013, OJ L 176, 27 June 2013, pgs. 1–337
CSD	Central Securities Depository
CSDR	Central Securities Depositories Regulation. Regulation (EU) 909/2014 of the European Parliament and of the Council of 23 July 2014, OJ L 257, 28 August 2014, pgs. 1–72
D-SIB	Domestic Systemically Important Bank
DORA	Digital Operational Resilience Act. Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022, OJ L 333, 27 December 2022, pgs. 1-79
EMIR	European Market Infrastructure Regulation. Regulation (EU) 648/2012 of the European Parliament and of the Council of 4 July 2012, OJ L 201, 27 July 2012, pgs. 1–59
FSB	Financial Stability Board
G-SIB	Global Systemically Important Bank
IAIS	International Association of Insurance Supervisors
IASB	International Accounting Standards Board
ICPFs	Insurance Corporations and Pension Funds (FSB)
IMF	International Monetary Fund
IOSCO	International Organisation of Securities Commissions
LCR	Liquidity Coverage Ratio

MiFID	Markets in Financial Instruments Directive. Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014, OJ L 173, 12 June 2014, pgs. 349–496
MMF	Money Market Fund
MMFR	Money Market Fund Regulation. Regulation (EU) 2017/1131 of the European Parliament and of the Council of 14 June 2017, OJ L 169, 30 June 2017, pgs. 8–45
MTN	Medium-Term Note
NAV	Net Asset Value
NBFIs	Non-Bank Financial Intermediaries
NSFR	Net Stable Funding Ratio
OFIs	Other Financial Intermediaries
OIFs	Other Investment Funds
REIT	Real Estate Investment Trust
SECR	Securitisation Regulation. Regulation (EU) 2017/2402 of the European Parliament and of the Council of 12 December 2017, OJ L 347, 28 December 2017, pgs. 35-80
SFT	Securities Financing Transaction
SICAV	Société d'Investissement à Capital Variable
SFTR	SFT Regulation. Regulation (EU) 2015/2365 of the European Parliament and of the Council of 25 November 2015, OJ L 337, 23 December 2015, pgs. 1-34
UCITS	Undertaking for Collective Investment in Transferable Securities
UCITSD	UCITS Directive. Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009, OJ L 302, 17 November 2009, pgs. 32-96

Key takeaways

1 Non-bank financial intermediaries (NBFIs) provide important and useful financial services, such as insurance and asset management. Their growing role in credit intermediation, known as shadow banking, however, poses significant risks to financial stability. Insufficient transparency of the shadow banking sector undermines effective supervision, distorts markets and shifts systemic risk towards the public while increasing moral hazard among market participants.

2 Interconnections within the NBFI sector, and between NBFIs and banks, have intensified since the Global Financial Crisis 2007-09 and are likely to deepen further as markets consolidate and large new entrants emerge. At the same time, critical information on risks, such as leverage and concentration, remains fragmented. Supervisors at both EU and national level should have centralised access to complete, granular, and consistent data to effectively execute their mandates.

3 Banks and NBFIs are “communicating vessels”, with large investment banks acting as major transmission channels for systemic risk. Structural reform and clearer recognition of the systemic importance of major NBFIs would help contain systemic risk and limit spillovers.

4 Effective supervision of shadow banking calls for a more holistic, cross-sectoral approach. This includes stronger and more centralised EU-level supervision, enhanced macroprudential tools, such as cross-sectoral stress tests and a dedicated macroprudential framework for systemically important NBFIs, as well as a more assertive stance in distinguishing genuine financial innovation from regulatory arbitrage.

Executive summary

Today, non-bank financial intermediaries (NBFIs) account for more than half of total global financial assets. While NBFIs provide a wide range of useful financial services, ranging from insurance to asset management, their role as alternative channels for credit intermediation, known as *shadow banking*, is coming under increasing scrutiny by regulators – and rightly so. A lack of transparency in shadow banking weakens effective supervision, distorts markets and heightens moral hazard by shifting systemic risk onto the public.

Over the last decade, NBFIs have grown faster than banks. In particular, investment funds – including mutual funds, hedge funds, and private equity and credit funds – have gradually gained a share of the global financial system's assets from banks, insurers, and pension funds. Some types of NBFIs, such as hedge funds, are highly reliant on bank funding. Others, such as investment funds and insurers, are important sources of bank liquidity, especially through the securities financing transaction (→ SFT) or “repo” markets.

As a result, interconnectedness within the NBFI sector, and between NBFIs and banks, has grown since the Global Financial Crisis of 2007-09 and is set to increase further through consolidation and the entry of large players, including digital platform operators. Key information, such as data on concentration risk and indirect leverage, remains incomplete and fragmented for regulators. Essential data should be made accessible centrally to competent authorities at the EU and member-state level.

Banks and NBFIs function as communicating vessels, with global investment banks acting as key intermediaries and amplifiers of systemic risk. Structural reform separating commercial and investment banking would help curb regulatory arbitrage, reduce concentration risk and limit spillovers. Major NBFIs are systemically important and should be recognised as such. The Financial Stability Board's work on a dedicated prudential framework – effectively halted in 2014 – should be revived and modernised. The EU framework for financial conglomerates (FiCOD) is outdated and overly narrow, requiring urgent legislative attention. EU-wide system stress testing could help uncover critical cross-sector linkages.

Addressing these cross-sector linkages requires a fundamentally different, holistic supervisory approach. This points to more centralised EU-level supervision, with the European Securities and Markets Authority (ESMA) progressively assuming greater direct supervisory responsibilities. Supervision must be more robust and assertive in distinguishing genuine financial innovation from regulatory arbitrage, which dilutes the impact and effectiveness of regulation, creates new pockets of unsupervised risk, and distorts competition in favour of players who are ready to skirt the rules. Supervisors need broader powers and a fuller macroprudential toolkit – including leverage limits and liquidity management tools – particularly for investment funds. The EU should complete the implementation of international standards, notably on Money Market Fund (→ MMF) liquidity buffers and SFT haircuts. EU legislators should also reject

the proposed revision of the securitisation prudential framework, which departs from Basel III and could introduce significant vulnerabilities. When deploying these tools, especially liquidity measures, care is needed to avoid unfairly shifting risk back onto investors. In the interest of simplification, products and practices that are excessively risky or demonstrably flawed should be removed from the market through legislation or supervisory action.

Introduction

Part I of this journey into the world of non-bank financial intermediaries (NBFIs)¹ has focused on the vast, in some parts still uncharted, territory of *shadow banking*. The objective of that exercise was to disentangle some of the intricate structures and relationships which connect banking with other segments of the financial system. This report, in turn, aims at reconnecting the various strands of that previous analysis. Interconnectedness between the banking and NBFI sectors is not a coincidence but rather a rational response of market participants to regulatory developments. While the regulatory response to the Global Financial Crisis of 2007-09 has brought some progress in improving the resilience of the banking sector it stopped well short of imposing similar standards on most of the NBFI sector – ironically, as it has been widely acknowledged since then that the Global Financial Crisis of 2007-09 was indeed the first major crisis of the global financial system that can be put down to the untrammelled growth, and resultant frailties, of the shadow banking sector.²

Today, regulators and supervisors once again worry about risks emanating from the NBFI sector. In 2024 alone, the global NBFI sector grew by 9.4% to ca. USD 257 trn, which is twice the rate of growth of the traditional banking sector (4.7%). For the first time, NBFIs accounted for more than half of total global financial assets (51%).³ This rate of growth, and a revival of the outdated narrative that financial markets have near-unlimited capacity to absorb risk – if only they are left to their own devices – calls for an up-to-date assessment of the current state of play. Does the NBFI sector in general, and its shadow banking activities in particular, still pose risks to global financial stability? Does the post-Crisis regulatory framework adequately address these risks? And, if not, what should be done? These are the questions this report tries to address.

1 Stiefmueller, C.M, Hidden Risks in NBFI: Mapping Vulnerabilities from Shadow Banking, Finance Watch Report, 18 December 2025.

2 e.g. Gorton, G. / Metrick, A., Securitised Banking and the Run on Repo, Journal of Financial Economics, vol. 104/3 (2012), pgs. 425-451; U.S. Financial Crisis Inquiry Commission, The Financial Crisis Inquiry Report: Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States, U.S. Government Printing Office (2011).

3 Financial Stability Board (FSB), Global Monitoring Report on Non-Bank Financial Intermediation 2025, 16 December 2025, pg. 5; Stiefmueller, C.M, Hidden Risks in NBFI: Mapping Vulnerabilities from Shadow Banking, Finance Watch Report, 18 December 2025, pgs. 9-10.

I. NBFi and systemic risk

A. Communicating vessels: banking and NBFi

a. NBFis, bank funding and business models

i. Dependence on wholesale funding

Wholesale funding, which comprises debt securities issued on the capital markets, deposits from financial and corporate customers, and securities financing transactions (→ SFTs), has seen steady growth, both before and since the Global Financial Crisis, and now represents 61% of European banks liabilities.⁴ The growth of wholesale funding has had a number of consequences: as it is a flexible, and often cost-effective form of funding, it has led to a shift in the structure of banks' balance sheets, increasing the reliance on short-term funding that has to be rolled over constantly, and also consequently increasing the need for maturity transformation. The mismatch between the structure of maturities on a bank's asset and liability side – i.e. funding long-term assets, such as mortgages, with short-term liabilities, such as borrowing from the wholesale markets – is a major source of systemic risk, and notorious for causing the collapse of the British mortgage lender Northern Rock in 2008. This episode also illustrates how the increased reliance on wholesale funding in the years preceding the Global Financial Crisis has left the financial industry highly vulnerable to runs. Runs by prime brokerage clients, typically hedge funds, demanding the return of their collateral were a major source of instability for U.S. investment banks Bear Stearns, Lehman Brothers and Merrill Lynch in 2008, which led to their eventual demise and, ultimately, to central bank and government intervention.⁵ Obviously, this vulnerability is especially problematic in the case of large, systemically important financial institutions. The interconnectedness between large banks and the NBFi sector through the wholesale funding channel implies that strains on wholesale funding markets both reflect and amplify the “too-big-to-fail” problem.⁶

In the wake of the Global Financial Crisis of 2007-09 legislators and regulators have sought to address the manifest risk of excessive asset-liability mismatches in bank funding through a variety of measures, including the Net Stable Funding (NSFR) and Liquidity Coverage (LCR) ratios. Nevertheless, the collapse of Crédit Suisse in March 2023 served as a stark reminder that the current framework is still not suited to reliably predict, let alone prevent, a funding crisis at a systemically important institution, which may cause severe systemic stress.

⁴ European Banking Authority (EBA), Analysis on EU/EEA Banks' Funding Structure And Their Dependence on Asset and Liability Exposures on Foreign Currency, EBA Report REP/10/2025, April 2025, pg. 14.

⁵ Singh, M., The Economics of Shadow Banking, Reserve Bank of Australia Annual Conference Volume 2013, 19-20 August 2013, pg. 19.

⁶ Hache, F., Finance Watch Report: A Missed Opportunity to Revive 'Boring' Finance?, December 2014, pgs. 52-53

ii. The transformation of banks' balance sheets

The intermediation of bank funding affects banks' balance sheets, both on the assets and the liabilities side: on the assets side, direct loan exposures are replaced with structured, securitised exposures; on the liabilities side, banks optimise funding costs by arbitraging between deposits and wholesale market funding. The shift from direct lending towards the “originate-to-distribute” model loosens the relationship between the bank and the borrower and poses a long-term threat to the “relationship banking” model.

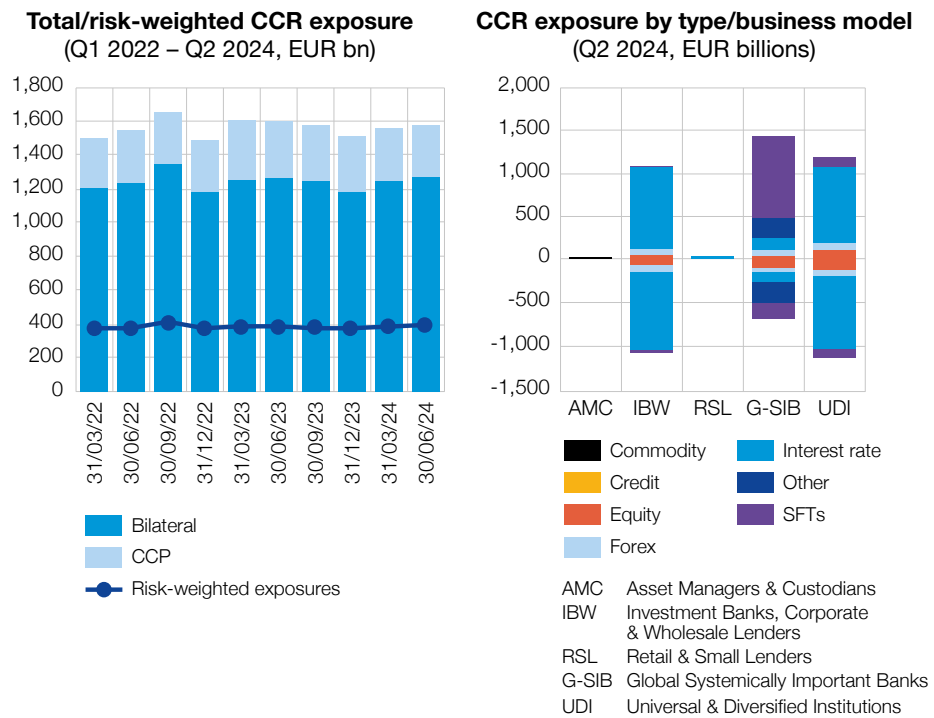
In a traditional banking environment, declines in credit quality during an economic downturn manifest themselves on banks' balance sheets in the form of rising provisions and loan losses. Banks' regular disclosures of provisioning levels and regulatory capital ratios provide a degree of transparency throughout the economic cycle. In the shadow banking environment, counterparty credit risk from synthetic exposures (e.g. derivatives and SFTs) has come to replace credit risk from direct lending exposures to the real economy. Traditional credit risk management is replaced, rather imperfectly, by the cruder and more limited set of standard tools available to manage counterparty credit risk, primarily → margins and → haircuts.

Banks' business models are reflected in their exposure to counterparty credit risk associated with specific product categories. Euro area G-SIBs play a key intermediation role in repo markets, as they account for a large majority of counterparty risk exposure arising from SFTs. By contrast, other investment banks, corporate and wholesale banks (IBW) and universal banks (UDI) are exposed to counterparty risk through foreign exchange and interest rate risk trades. It is also worth noting that their exposures appear balanced,⁷ indicating hedged positions, while G-SIBs show a significant amount of unhedged exposures from SFTs, probably related to market-making and prime brokerage activities.⁸

7 In the right-hand panel, coloured bars reflect institutions' aggregate derivative exposures (positive/negative market values). Symmetric positive/negative bars indicate that positions are largely matched (hedged) while asymmetric bars are indicative of unhedged, potentially risky positions.

8 Barbieri, C. / Grodzicki, M. / Halaj, G. / Pizzeghello, R., Systemwide Implications of Counterparty Credit Risk, European Central Bank (ECB) Macroeprudential Bulletin No. 26, January 2025.

Figure 1: Exposure to counterparty credit risk



NBFI entities are the main counterparty sector for Eurozone banks, after “other banks”. In the repo market, Eurozone G-SIBs intermediate between NBFI counterparties and smaller banks, while smaller banks interact mainly with other banks. In the derivatives markets, NBFI entities are the most important counterparty sector besides banks themselves. Repo and derivatives trading are both heavily concentrated within a small group of counterparties. For example, 10% of all repo counterparties account for 80% of the outstanding value of such transactions. This market structure suggests that a shock originating from large NBFI counterparties could have severe repercussions for the euro area banking system.⁹

iii. Bank business models and systemic risk

Banks have responded to the reduced importance of deposits as a source of funding for them by adapting to the new environment. They have moved into alternative business lines that rely less on traditional interest-based revenues (loans) and more on fee-based revenues (investment banking activities) which have seen substantial growth since the 1990s. They have also turned to asset managers and other financial institutions for financing through wholesale funding, a form of short term borrowing from other financial institutions often collateralised by liquid, highly-rated securities. Because it is both short term and fully collateralised by high quality assets, it is a cheap form of funding that appealed greatly to banks and enabled them to increase

⁹ Barbieri, C. / Grodzicki, M. / Halaj, G. / Pizzeghello, R., Systemwide Implications of Counterparty Credit Risk, European Central Bank (ECB) Macroprudential Bulletin No. 26, January 2025.

their leverage at low cost. As banks moved towards more market-based activities, they had access to large quantities of short term liquid assets, whether from their trading books, from the collateralised funding they extended to hedge funds or from their custodial services, all of which could be used as collateral. This collateral enabled them to secure funding from assets managers. Although asset managers were generally reluctant to finance banks by putting their assets into traditional banking deposits, their appetite for short-term liquid investments meant that they were happy to lend to banks against these short-term liquid securities.¹⁰ As a result, many of the largest universal banking groups in Europe, including most European G-/D-SIBs, have gravitated towards market-oriented business models focusing on corporate and wholesale lending, investment banking, securities and derivatives dealing and market-making, and custodial services.

Recent research into the relationship between banks' business models and systemic risk¹¹ demonstrates how banks' choices of business model also affect their systemic risk profile. An analysis of a large sample of (more than 200) European Economic Area (EEA) banks between 2005 and 2020, a period which includes various episodes of instability, indicates that, during quiet periods, banks with different business models exhibit similar sensitivity to systemic risk. During periods of instability, however, the choice of business model becomes critical: investment banks, in particular, contribute more, and are more exposed to systemic risk. The contribution of investment banks and diversified (universal) banks to systemic risk is particularly pronounced when episodes of instability are triggered by tensions within the financial sector itself, rather than by external shocks. Conversely, focused retail banks consistently show lower contributions and exposures to systemic risk. Banks that transition from diversified (universal) to more retail-oriented models reduce their systemic risk, while migrations in the opposite direction do not exhibit the same benefit.

iv. Relationship banking

The rise of shadow banking as an alternative to traditional banking, and the transformation of banks' balance sheets, both on the asset and on the liabilities side (Section I. A. a. ii.), has wide-ranging repercussions on their relationship with clients. At the most basic level, client deposits are no longer an essential source of funding, but an option alongside market-based wholesale funding.

The shift towards collateralised lending, based on SFTs, affects the fundamental mechanics and dynamics of short-term credit markets, away from the traditional model of *relationship lending* towards a more *transactional*, capital market-driven model. It is argued that collateralised short-term lending, where loans are fully guaranteed by the collateral (including a safety margin; → **haircut**), is more cost-effective than the

¹⁰ Hache, F., Finance Watch Report: A Missed Opportunity to Revive 'Boring' Finance?, pg. 72.

¹¹ Ayadi, R. / Bongini, P. / Casu, B. / Cucinelli, D., The Origin of Financial Instability and Systemic Risk: Do Bank Business Models Matter?, Journal of Financial Stability, vol. 78/06 (2025), Article No. 101403.

laborious, and costly process of assessing the credit risk of a particular counterparty.¹² What is often overlooked in this argument is the fact that, in periods of stress, lenders tend to respond to rising concerns about the ability of borrowers to repay their loans by ratcheting up collateral requirements, a factor that can trigger sudden and extreme swings in credit markets. The ensuing volatility and procyclicality has been identified as a major threat to financial stability and one of the root causes of the Global Financial Crisis of 2007-09.

Pressure induced by the volatility of collateral valuations, and hence fluctuations in the availability of short-term funding, translate into a more short-termist outlook on credit provision and risk appetite, which is at odds with the traditional perception in Europe of banks as archetypal providers of *patient capital*. The emergence of the **originate-to-distribute** model, a logical reflection of these shifts, poses particular challenges for the traditional, relationship-based approach. When loans, especially long-term loans such as residential mortgages, are transferred to an → SPV as part of a securitisation transaction,¹³ the relationship between lender and borrower is broken – even if the bank continues to service the portfolio of loans on behalf of the SPVs (and its external ABS investors) it only does so as an agent rather than as the principal. This has a direct impact on the borrower, especially when the need arises to negotiate forbearance measures, e.g. a deferral of repayments, or renegotiate the terms of the loan altogether. Factors that may otherwise influence the bank's attitude towards customers, such as cross-selling, follow-on business, and reputational risk, become distinctly less relevant when third parties are involved; other considerations, such as the obligation to protect the interests of ABS investors, the credit rating of → ABS sold to the market, and reputational risk of the originating bank vis à vis its capital market counterparties - rather than retail or corporate customers - are likely to take precedence.

b. Regulatory arbitrage

The size, complexity, and business model of a bank also play a role when it comes to drawing its boundaries and shaping its linkages with the NBFIs sector: the larger and the more diverse a group, the more opportunities it has to engage with the NBFIs sector across its range of activities. Also, the more touchpoints exist with the NBFIs sector, the more fluid the boundaries become. For large, global banking groups and their NBFIs peers, arguably, these boundaries are determined more often by their own strategic decisions than by a *line in the sand* drawn by the regulator.

For regulators, the first challenge in attempting to regulate shadow banking is one of setting, and enforcing a regulatory perimeter. In a similar vein, Muñoz notes that the reality of shadow banking is “more a combination between ‘norm evasion’ by market

¹² Hache, F., Finance Watch Report: A Missed Opportunity to Revive ‘Boring’ Finance?, December 2014, pg. 76

¹³ Stiefmueller, C.M., Hidden risks in NBFIs: Mapping vulnerabilities from shadow banking, Finance Watch Report, 18 December 2025, pg 25-31.

players, and ‘norm forbearance’ by policymakers.”¹⁴ Although large parts of shadow banking have been regulated, *traditional* banking has been regulated even more strictly, increasing competition for funds, and pressure to migrate to less regulated parts.¹⁵ Policymakers looking towards NBFIs to help fund the economic recovery and a return to growth try to have it both ways. Shadow banking is, at its heart, “a problem of coherence in the system.”¹⁶ Poorly drawn and enforced boundaries invite regulatory arbitrage. In the words of Danièle Nouy, former Chair of the Supervisory Board of the European Central Bank (ECB), regulatory arbitrage occurs when financial institutions deliberately structure their activities “in a way that dilutes the impact of regulation without a corresponding reduction in the underlying risk. The result, of course, is that the risk becomes insufficiently regulated.”¹⁷

In general terms, regulatory arbitrage takes three forms¹⁸:

- **“Cross-jurisdictional” arbitrage** exploits the fact that legal frameworks differ from one country to another. Some rules, for example, might be less strict in one country, while others might be less strict in another. Over time, business is likely to shift to countries where the rules are less strict, which will undermine financial stability and set off a regulatory “race to the bottom” as countries deregulate in order to keep the business activity in their jurisdiction. Plenty of cross-jurisdictional arbitrage opportunities still exist even within the EU, often jealously guarded by Member States.
- **“Cross-framework” arbitrage** occurs when financial institutions jump sectoral fences. While the banking sector is highly regulated, other parts of the financial system – especially the NBFIs – are less so. Banks may move business to the shadow banking sector by shifting exposures into SPVs or by entering into arrangements with NBFIs to replicate aspects of their business or take on risks they are no longer willing to fund. The danger, of course, is that these risks may be out of sight but they have not disappeared.
- With **“intra-framework arbitrage”** financial institutions do not even have to overcome national or sectoral fences. Rather than trying to exploit differences between two or more sets of rules, they try to exploit loopholes within a single set of rules. The most obvious example is banks’ permanent preoccupation with minimising regulatory capital and liquidity requirements.

Regulatory arbitrage should not be taken lightly. It is not merely a “race between the hare and the hedgehog” but poses a genuine problem: regulatory arbitrage dilutes the

14 Muñoz, D. R., Shadow Banking: Current Headaches, Old Problems?, Instituto de Estudios Financieros (IEF) Working Paper No. 54, October 2024.

15 cf. Stiefmueller, C.M., Hidden Risks in NBFIs: Mapping Vulnerabilities from Shadow Banking, Finance Watch Report, 18 December 2025, Section II.B.a. (pgs. 13-20).

16 Muñoz, D. R., Shadow Banking: Current Headaches, Old Problems?, Instituto de Estudios Financieros (IEF) Working Paper No. 54, October 2024.

17 Nouy, D., Gaming the Rules or Ruling the Game? – How to Deal with Regulatory Arbitrage, Speech at the 33rd SUERF Colloquium, Helsinki, 15 September 2017.

18 Ibid.

impact and effectiveness of regulation, creates new pockets where risks can build up unsupervised, and tips the scales of competition in favour of players who are ready to skirt the rules. Problems arise, in particular, when regulatory arbitrage is re-labelled and presented as “financial innovation”. There will always be the argument that a new instrument, service, or practice contributes to the economy at large by lowering the cost of capital, increasing the supply of credit, or improving the liquidity of capital markets. These arguments are often heard in connection with the growth of the NBFi sector; they were proffered to justify the practices that brought about the Global Financial Crisis and are repeated, time and again, to explain the relentless growth of financial-sector activity in general, and shadow banking in particular, which continues to steadily outpace the rate of growth of the real economy.

c. The declining marginal utility of financial innovation¹⁹

When considering the apparent reluctance of policymakers and regulators to draw the lines between banking and NBFi in a more rigorous and assertive way, it may be worth revisiting a discussion which was topical for a while after the Global Financial Crisis, but seems to have largely subsided since: what is the marginal contribution of so-called “financial innovation” to economic and societal welfare?

Although the term “financial innovation” may have lost much of its shine in the aftermath of the crisis, banks are still as busy as ever repackaging financial assets into new, ever more complex and opaque instruments (e.g. synthetic securitisation). A deeply misguided belief in the necessarily positive marginal contribution of new, “innovative” financial instruments towards the creation of an efficient market and near-mystical belief in the wisdom and self-healing capacity of “free markets” continues to linger among academics, regulators and policymakers. This mindset has stymied most efforts to rein in what Adair Turner, former Chairman of the U.K. Financial Services Authority, once famously described as “socially useless” activities of the financial sector.

The crisis of 2007-09 was, of course, not the first major crisis of the global financial system in recent times. Much to the contrary, financial crises have been part and parcel of economic life throughout the ages.²⁰ *Boom and bust* cycles are as old as the markets themselves. History is riddled with what Alan Greenspan, who presided over one of the biggest and most devastating financial crashes before the crisis of 2007-09, the dot com boom and bust of the late 1990s, once called “irrational exuberance”. What was new this time, however, was the sheer magnitude of economic damage it wrought and how it shattered – or should have – preconceptions about the effectiveness and resilience of a global economy guided by the *invisible hand* of deregulated financial markets.

19 This section reprises arguments set out previously in Stieffmueller, C.M., Ten Years After: Back to Business as Usual, Finance Watch Report, 13 September 2018, pgs. 16-20.

20 e.g. Reinhardt, C.M. / Rogoff, K.S., This Time is Different: Eight Centuries of Financial Folly (Princeton University Press 2009).

Mainstream economics since the 1980s revolved mostly around a firm belief in the efficiency of markets which would, left to themselves, maintain or, when recovering from an external shock, revert to a stable equilibrium. That mindset prompted scholars and practitioners to set off on the quest for a “complete market” where every single thing under the sun, every conceivable event or state of affairs, could be expressed through the price of a financial instrument.²¹ Every additional financial instrument that is traded and priced on the markets, so the theory went, represents one more valuable piece of information to contribute to a complete economic description of the world. The collective knowledge of all market participants would see to it that the pricing of these instruments would incorporate all the available information at the time as well as people’s best guesses (*rational expectations*) of what may happen in the future.²² In this scenario, financial markets should serve as the central exchange within a market economy where economic risks are identified, quantified (priced) and then reallocated/redistributed efficiently between risk-tolerant and risk-averse market participants. This theoretical approach has been underpinning the growth of “financial engineering”, the relentless production of new financial instruments that claim to contribute to the creation, ultimately, of that mythical “complete market”. It is against this theoretical background that hardly any mainstream economist spoke up to caution against the proliferation of ever more complex, and intransparent, financial instruments.

Beautiful though it is in its universality, this general theoretical concept has fatal flaws: a) there is no realistic expectation of ever achieving a “complete market” and b) there is no evidence of consistently rational behaviour. Even its fathers were acutely aware of its fundamental shortcomings.²³ This has not kept free-market enthusiasts from borrowing its key arguments, grossly simplified, to support their case for the alleged self-correcting power of deregulated financial markets.

The crisis of 2007-09 has demonstrated quite clearly, and not for the first time, that market players are not always acting rationally. Their behaviour is often driven by the wild swings between greed and fear as well as behavioural biases, such as *herd behaviour*.²⁴ Financial instruments are mispriced, often over long periods of time, because of irrational decision-making, inertia, and the *path dependency* of securities prices. Even if they were acting rationally, there will always be *asymmetric information*,

21 This hypothetical financial instrument, which generates a pay-out only if one particular state of events occurs, is known as an “Arrow-Debreu security”, named after economists Kenneth Arrow and Gérard Debreu who are credited with developing the eponymous theory of “general (economic) equilibrium” and were awarded the Nobel Prize in Economics in 1983. In practice, Arrow-Debreu securities are constructed, and priced, on the basis of existing financial instruments using option pricing models for a variety of uses in financial economics and in the creation of “financial products”.

22 “Rational expectations” theory, frequently attributed to the work of John F. Muth and Robert Lucas, assumes that market participants act, as a general rule and most of the time, according to a set of expectations about the future – including future behaviour and actions of all other participants – that are formed rationally and based on all available information at the time. It goes on to conclude that the outcomes that are being forecast by the majority of participants in a market economy would be essentially in line with the market equilibrium, as defined by Arrow and Debreu’s framework.

23 e.g. *Debreu, G.*, Excess Demand Functions, *Journal of Mathematical Economics*, Vol. 1/1 (1974), pgs, 15-21.

24 e.g. *Akerlof, G.A. / Shiller, R.J.*, *Animal Spirits: How Human Psychology Drives the Economy and Why It Matters for Global Capitalism*, Princeton University Press (2009).

an information advantage which allows one group of market players to extract profits at the expense of other, less well-informed market participants.²⁵

There is also a limit to the incremental utility of financial instruments and their prices.²⁶ More financial assets (and their prices) do not necessarily convey more and better information. Practical limitations exist on multiple levels, including market microstructures,²⁷ information asymmetries and inefficiencies,²⁸ behavioural biases,²⁹ and principal-agent friction.³⁰ Especially prices of assets that are traded privately between a small number of parties or on markets with little liquidity or which are opaque and difficult to price may not be reliable³¹, and hence not convey valuable information at all. Just as critically, asset prices based on established, widely accepted financial and econometric models are ultimately self-referential and thus susceptible to flaws in the underlying models. Even in liquid, public markets prices can be distorted for extended periods.³² There is, in sum, no compelling argument to justify why all new financial instruments are, a priori, useful so that there should not be obstacles to bringing them to the market. Much to the contrary, financial activity also causes negative externalities,³³ which need to be priced in and further reduce that marginal contribution.

By now, major international institutions as well as leading academics have concluded, in view of a growing body of analytical work and empirical evidence, that there is indeed an inflection point beyond which financial activity becomes not only unproductive but positively harmful to the real economy.³⁴ IMF researchers noted that “there can be instances where there is ‘too much finance’ – that is, instances where the costs outweigh the benefits of financial development. [...] Marginal returns to growth from

25 e.g. *Akerlof, G.A.*, The Market for Lemons: Quality Uncertainty and the Market Mechanism, *The Quarterly Journal of Economics*, vol. 84/3 (1970), pgs. 488-500.

26 e.g. *Caccioli, F. / Marsili, M. / Vivo, P.*, Eroding Market Stability by Proliferation of Financial Instruments, *European Physical Journal B*, Vol. 71/4 (2009), pgs. 467-479 (<https://link.springer.com/article/10.1140/epjb/e2009-00316-y>)

27 For an overview on how market microstructures facilitate - and influence - price formation in financial markets e.g. *O'Hara, M.*, *Market Microstructure Theory*, Wiley Blackwell (1998).

28 The “Grossman-Stiglitz paradox”, in particular, questions the assumption that asset prices reflect all available information on the basis that such markets would be inherently unsustainable; cf. *Grossman, S.J. / Stiglitz, J.E.*, On the Impossibility of Informationally Efficient Markets, *American Economic Review* 70/3 (1980), pgs. 393-408.

29 The discipline of “Behavioural Finance” specifically explores these biases and how they affect decision-making in financial markets; e.g. *Akerlof / Shiller*, *Animal Spirits* (2009); *Kahnemann, D. / Tversky, A.*, Prospect Theory: An Analysis of Decision Under Risk, *Econometrica* vol. 47/2 (1979), pgs. 263-291; *Akerlof, G.A.*, The Market for Lemons (1970).

30 There is extensive literature on how misaligned incentives, different time horizons, and asymmetric information, among other factors, introduce friction in the principal-agent relationship and affect asset pricing; e.g. *Shleifer, A. / Vishny, R.W.*, The Limits of Arbitrage, *Journal of Finance*, vol. 52/1 (1997), pgs. 35-55; *Dow, J. / Gorton, G.*, Arbitrage Chains, National Bureau of Economic Research (NBER) Working Paper 4314, April 1993 (https://www.nber.org/system/files/working_papers/w4314/w4314.pdf).

31 On the challenges for price formation in private, over-the-counter markets e.g. *Duffie, D.*, *Dark Markets: Asset Pricing and Information Transmission in Over-the-Counter Markets*, Princeton University Press (2012).

32 e.g. *Pedersen, L.H. / Brunnermeier, M.*, Predatory Trading, National Bureau of Economic Research (NBER) Working Paper 10755, September 2004 (https://www.nber.org/system/files/working_papers/w10755/w10755.pdf).

33 e.g. *Korinek, A.*, Systemic Risk Taking, Amplification Effects, Externalities, and Regulatory Responses, ECB Working Paper No. 1345, June 2011 (<https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1345.pdf>).

34 e.g. *Cecchetti, S.G. / Kharroubi, E.*, Reassessing the Impact of Finance on Growth, BIS Working Paper No. 381, July 2012 (<https://www.bis.org/publ/work381.pdf>); *Arcand, J.-L. / Berkes, E. / Panizza, U.*, Too Much Finance?, IMF Working Paper WP/12/161, June 2012; (<http://www.imf.org/external/pubs/ft/wp/2012/wp12161.pdf>).

further financial development diminish at high levels of financial development, that is, there is a significant, bell-shaped, relationship between financial development and growth.”³⁵ The BIS, too, found that “the growth of a country’s financial system is a drag on productivity growth. That is, higher growth in the financial sector reduces real growth. In other words, financial booms are not, in general, growth-enhancing, likely because the financial sector competes with the rest of the economy for resources. [...] This evidence, together with recent experience during the financial crisis, leads us to conclude that there is a pressing need to reassess the relationship of finance and real growth in modern economic systems.]”³⁶

Despite all the evidence to the contrary, not least the experience of the crisis of 2007-09, in a breathtaking feat of “cognitive dissonance”, critical policymaking decisions in Europe, the U.S. and elsewhere continue to be informed by the mechanistic and outdated concept of efficient, self-correcting financial markets. Instead of “letting the markets decide” to be whatever they choose to be, it would be about time to have an open and constructive democratic debate, fully anchored in facts, about what “the markets” should be. There is no single right answer hidden in the murmur of the all-knowing “hive mind” that is “the markets”. Citizens and policymakers need to formulate a positive view, enshrined in law, of the role financial markets should play, instead of merely fencing in the playpen (and picking up the bill when toys get broken).

It is likely that different societies will come to different conclusions, based on their cultural values and traditions. These differences need to be addressed and negotiated at the global level to strike a balance between the economic benefits of global free trade and those individual and public “goods” whose value to society is not determined solely by their economic utility.³⁷ In a globalised world that is increasingly dominated by a handful of large, powerful actors it appears obvious that the small and medium-sized nations of Europe will only be able to protect these “goods” if they join together. It is not enough for the European Union, therefore, to merely administer a large, glorified free trade area where financial markets are liberalised and capital moves, friction-free, from one country to another, from one asset class to the next. The disposition of public goods, in particular, needs to be removed once again from the clinical, epistemic logic of an allegedly perfect and impartial market and return them to the exclusive domain of that irretrievably messy and imperfect but still incomparably more inclusive and legitimate mechanism that is the democratic process.

The financial crisis, and numerous other incidents before and after, have demonstrated that “financial innovation” is a double-edged sword. Like any other product, financial instruments traded on the public markets ought to be inspected and safety-tested by

35 Sahay, R. / Čihák, M. / N'Diaye, P., et al., Rethinking Financial Deepening: Stability and Growth in Emerging Markets, IMF Staff Discussion Note SDN/15/08, May 2015; (<http://www.imf.org/external/pubs/ft/sdn/2015/sdn1508.pdf>).

36 Cecchetti, S. G. / Kharroubi, E., Why Does Financial Sector Growth Crowd Out Real Economic Growth? Bank for International Settlements (BIS) Working Paper No. 490, 12 February 2015; (<https://www.bis.org/publ/work490.pdf>).

37 A fundamental distinction between what may and may not be given a price was drawn already by Kant in ‘The Metaphysics of Morals’ (1797) and has been thematised again more recently e.g. by Sandel and others (e.g. Sandel, Michael J., What Money Can’t Buy: The Moral Limits of Markets (Farrar, Strauss & Giroux 2012)).

the supervisory authorities. Authorities should be given more powers to review and, if necessary, to suspend or ban the distribution of financial instruments that contain undisclosed risks or have the potential to destabilise segments of the markets, causing systemic risk. Authorities should also learn to use the powers they have more assertively.

B. Dimensions of systemic risk

a. Concentration / correlation risk (interconnectedness)

The redistribution of risk between different segments of the financial markets is often pictured, to lay people at least, as “drops in the ocean”, diluted immediately in vast pools of liquidity and swept out of sight. In many instances, however, it rather resembles the passage of large ships through the Suez Canal.

Figure 2: Ever Given a thought to what this little mishap did to global trade?



Source: Sebastian, T. 2021. The Capitalist.

i. Concentration risk

Concentration risk can be **permanent**, as a result of market structure, dominant market share, or high barriers to entry, or **transient**, reflecting temporary concentrations, e.g. due to large individual exposures, or the exit of market participants. It is difficult, of course, to draw the boundary between these two categories. Temporary concentrations may become entrenched, and thus structural over time. Sometimes concentration risk occurs spontaneously, and quite dynamically. It may materialise in pockets of the market which are new, growing fast, and where supervisory data is patchy. Not surprisingly, such **temporary peaks** tend to occur most often at times of systemic stress. As a result, this type of risk is even more difficult for supervisors to detect and manage. This is, arguably, what happened during the Global Financial Crisis in some parts of the → ABS, → ABCP, and repo markets.³⁸

While there are always difficulties in delineating and quantifying the constituent parts of the NBF system,³⁹ and there are bound to be overlaps and omissions in some

38 Gorton, G. / Metrick, A., Securitised Banking and the Run on Repo, Journal of Financial Economics, vol. 104/3 (2012), pgs. 425-451.

39 Stiefmueller, C.M, Hidden risks in NBF: Mapping vulnerabilities from shadow banking, Finance Watch Report, 18 December 2025, pg 13-14.

areas, the available data is quite unequivocal. In the area of asset management, which includes insurers and pension funds (ICPFs) and other investment funds (OIFs), including hedge funds, the **twenty largest** global market participants account for ca. **45%** of total assets under management (AUM).⁴⁰ With total AUM of ca. USD 12 trn in 2024, BlackRock is the single largest asset manager worldwide. These headline numbers are likely to understate the actual market dominance of individual market participants in certain segments, such as Exchange-Traded Funds (ETFs).⁴¹ Eight of the twenty largest asset managers (five in the US, three in Europe) are subsidiaries of global systemically important banking groups (G-SIB).⁴²

In the wake of the Global Financial Crisis, global standard-setters tried, largely unsuccessfully, to expand the designation of “systemically important institutions” to the insurance and asset management sectors, with the objective to introduce enhanced prudential safeguards for groups that were considered a potential risk for global financial stability. These efforts were effectively put on ice after a fierce fightback by both industries. The US insurer MetLife won a court case against the US Financial Stability Oversight Council (FSOC)⁴³ in 2016, which led to the suspension of the designation regime for **global systemically important insurers (G-SIIs)** in the US and globally.⁴⁴ The designation scheme for other **systemically important non-bank, non-insurance financial institutions (SI-NBNIs)** was stopped in its tracks by major global asset managers, led by BlackRock,⁴⁵ already during the Financial Stability Board’s consultation phase in 2015.⁴⁶

As mentioned before, the distinction between permanent (structural) and transient (temporary) concentrations of risk is difficult to pinpoint. A key structural feature of the NBFi landscape is the role of → **prime brokers**, usually part of the investment banking divisions of G-SIB banking groups, who dominate the provision of credit and offer other services to hedge funds.⁴⁷ This concentration could amplify shocks and propagate them through the financial system.⁴⁸ Due to the wide range of services

40 Based on total assets under management of the 500 largest global asset managers of ca. USD 128 trn, as of 13 December 2023 (Source: Thinking Ahead Institute, *The World’s Largest 500 Asset Managers: A Thinking Ahead Institute and Pensions & Investments Joint Study*, Thinking Ahead Institute / Willis Towers Watson, October 2024).

41 Steele, G., *The New Money Trust: How Large Money Managers Control Our Economy and What We Can Do About It*, American Economic Liberties Project, 23 November 2020.

42 State Street, J.P. Morgan Chase, Goldman Sachs, Bank of New York (BNY Investments) and Morgan Stanley in the US, UBS, BNP Paribas, and Groupe BPCE (Natixis) in Europe.

43 *MetLife Inc. vs. Financial Stability Oversight Council*, 177 Federal Supplement 3d 219 (District Court, District of Columbia 2016).

44 Financial Stability Board (FSB), *The FSB Endorses an Improved Framework for the Assessment and Mitigation of Systemic Risk in the Insurance Sector and Discontinues Annual Identification of Global Systemically Important Insurers (G-SIIs)*, 09 December 2022.

45 BlackRock, *Comments on the Consultative Document (2nd) Assessment Methodologies for Identifying Non-Bank Non-Insurer Global Systemically Important Financial Institutions*, 29 May 2015.

46 Financial Stability Board (FSB), *Next Steps on the NBNi G-SIFI Assessment Methodologies*, 30 July 2015.

47 As of April 2024, eight of the ten largest prime brokers belonged to G-SIB banking groups. Together, the Top Ten account for ca. 75% of the total market (Source: Convergence, *Prime Broker League Tables*, April 2024).

48 Financial Stability Board (FSB) *The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation*, 06 September 2023, pg. 2.

provided by prime brokers, and the resulting degree of interconnectedness between them, their parent groups, and their hedge fund clients, concentration risk may manifest itself in a variety of ways. They may build up over time, as in the case of Archegos,⁴⁹ or materialise spontaneously and opportunistically, e.g. in response to market developments and/or market participants taking advantage of particular market constellations.

Structural concentration can occur in **certain market segments**, for instance if the economics of a particular transaction type favour large market participants who are able to (i) compensate relatively high transaction costs by spreading them over large transaction volumes; and (ii) achieve maximum regulatory capital relief by applying the Internal Ratings-Based (IRB) approach. As a result, such markets tend to show high degrees of concentration in terms of market share. This is the case for many types of structured finance transactions, such as **securitisation**. Only a small number of large banks, usually G-/D-SIBs, regularly originate “true-sale” securitisations. Concentration risk becomes a particular issue if it is not limited to the originator’s side. In the market for synthetic securitisation, for instance, credit protection is offered by only a small number of institutions, mainly private credit and hedge funds.⁵⁰ Post-crisis reforms have sought to address concentration risk by improving transparency: originators of securitisations in the EU are required to register their issues with licensed trade repositories. These obligations still leave large areas of the market uncovered: as of year-end 2023 only half of the total outstanding amount of securitisations in the EU was registered with repositories.⁵¹ Similar dynamics are at work in other markets, such as leveraged lending and certain complex derivatives, where large balance sheets and/or high credit ratings are prerequisites which represent formidable barriers to entry for all but a small number of players.

A recent study by the ECB⁵² notes that NBFIs are the main counterparties for Eurozone banks in **SFTs** and **derivatives trading**, besides other banks. In the repo market, Eurozone G-SIBs intermediate between NBFIs counterparties and smaller banks, while smaller banks interact mainly with other banks. In the derivatives markets, NBFIs are the most important counterparties besides banks themselves. Repo and derivatives trading are both heavily concentrated within a small group of counterparties. For example, **10% of repo counterparties** account for **80% of the outstanding value** of such transactions. As the ECB study concludes, “this market structure suggests that a shock originating from large NBFIs counterparties could have severe repercussions for the Eurozone banking system.”

49 European Securities and Markets Authority (ESMA), Leverage and Derivatives – The Case of Archegos, ESMA 50-165-2096, May 2022.

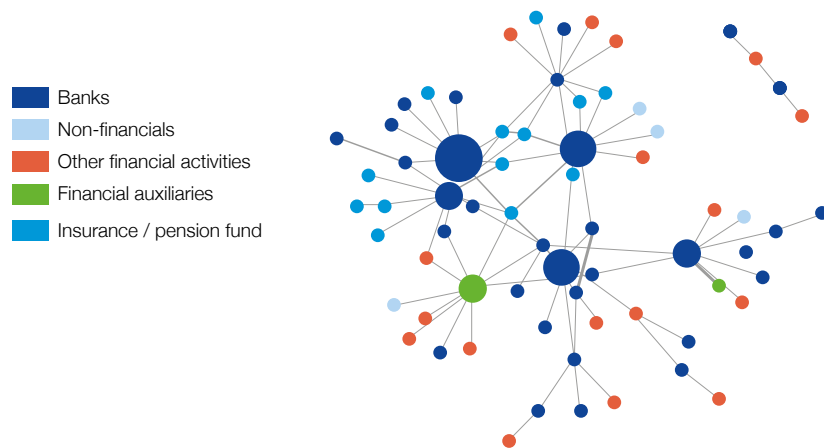
50 Gonzalez, F. / Morar Triandafil, C., The European Significant Risk Transfer Securitisation Market, European Systemic Risk Board (ESRB) Occasional Paper Series No. 23, 03 October 2023, pg. 30.

51 Joint Committee of the European Supervisory Authorities (JC ESA), Joint Committee Report on the Functioning of the Securitisation Regulation (Article 44). Final Report, JC 2025/14, 31 March 2025, pg. 15.

52 Barbieri, C. / Grodzicki, M. / Halaj, G. / Pizzeghello, R., System-wide Implications of Counterparty Credit Risk, European Central Bank (ECB) Macroeprudential Bulletin No. 26, January 2025.

In the same study,⁵³ ECB research staff mapped the transmission of default shocks from counterparty credit risk (CCR) related to securities financing and derivatives exposures that are not centrally cleared through Central Counterparties (CCPs). The analysis, based on data from the 2023 EU-wide stress carried out by the European Banking Authority (EBA), captures the ten largest counterparties of each participating bank. It shows a concentration around five groups, four banks and one other financial intermediary, which connect a large number of other financial institutions, including NBFIs. Although only one NBFi occupies a central role in its own network of NBFIs, especially insurance companies and pensions funds (ICPFs), figure prominently in each one.

Figure 3: Transmission of default shocks



Source: ECB (2025)

During the Global Financial Crisis, regulators and market participants observed that financial institutions sometimes feel obliged or have incentives to “step in” to support unconsolidated entities to which they are connected, even though they are not bound by contractual obligations or equity ties to do so. Banks, in particular, provided credit or liquidity support to securitisation conduits, structured investment vehicles and money market funds during the crisis, mostly to ward off potential reputational risk from being associated with a distressed or failing entity. The risk that a bank may provide financial support to an entity in financial distress beyond, or in the absence of, contractual obligations is known as “step-in risk” and is seen as a potential channel for contagion between banks and the shadow banking system. The Basel Committee has issued Guidelines⁵⁴ for banks to anticipate, and assess “step-in risk”.

⁵³ Barbieri, C. et al., System-wide Implications of Counterparty Credit Risk.

⁵⁴ Basel Committee on Banking Supervision (BCBS), Guidelines: Identification and management of Step-in Risk, October 2017; Bank for International Settlements / Financial Stability Institute (FSI), Step-in Risk – Executive Summary, 26 August 2021.

ii. Correlation risk and herding

Concentration risk is not only a function of formal ownership control. Whereas it seems obvious, and tautological, that a liquidity and/or solvency crisis of a systemically important institution poses a systemic threat to financial stability, concentration risk may manifest itself in other more subtle ways, e.g. through **correlation**. Institutions that are formally independent and not mutually liable in the event of an insolvency, e.g. individual funds administered by the same manager, may still follow the same investment strategies based on group-wide analyses and recommendations, make the same choices in their allocations, and respond to market developments in the same ways. Correlation may also occur as a result of cross-holdings between funds: in the EU, for instance, 30% of investment fund assets are held by ICPFs.⁵⁵

→ **Herding** effects extend well beyond the sphere of the individual asset management group. Herding may increase indirect contagion, when competing fund managers apply similar business models and investment strategies. Solvency or liquidity concerns of a single fund that result in asset sales can quickly spread to funds with similar investment strategies and thus amplify risks of fire sales, which may lead to market failures.⁵⁶ The same dynamics may come into play where large asset management groups rely on the same sources of market information and/or the same analytical tools. This scenario is not at all hypothetical: virtually all major asset managers use portfolio management, risk analytics, and trading software provided by a handful of suppliers, such as Aladdin, a division of BlackRock, and AIM by Bloomberg. The widespread use of algorithmic and high-frequency trading, and the race among asset managers, traders, and other intermediaries to adopt applications based on Artificial Intelligence (AI), could further reinforce → herding dynamics by adding a new aspect where automated trading programmes following similar strategies, and executing similar instructions - independently and without human intervention, could channel vast amounts of funds the same way (**algorithmic herding**). Again, this phenomenon is not purely hypothetical: on several occasions in the past, perhaps most memorably in May 2010,⁵⁷ so-called “flash crashes”, initiated or amplified by automated trading, have severely disrupted markets, sometimes on a global scale.

Compensation structures can also incentivise herding as asset managers’ performance is benchmarked against their peers. Herding provides the comfort that the asset manager will not significantly underperform his peers, even though herding implies that managers may collectively follow asset prices away from their fundamental value during episodes of *boom and bust*.⁵⁸ The former IMF chief economist and Governor of the Reserve Bank of India, Raghuram Rajan, noted in 2005 that it takes “a very brave

55 European Fund and Asset Management Association (EFAMA), Fact Book 2025, pg. 65.

56 Lehecka, G. / Ubl, E., Analyzing the Systemic Risks of Alternative Investment Funds Based on AIFMD Reporting: A Primer, Oesterreichische Nationalbank (OeNB) Financial Stability Report 30, December 2015, pgs. 62-70.

57 U.S. Securities and Exchange Commission / U.S. Commodity Futures Trading Commission Findings Regarding the Market Events of May 6, 2010, 30 September 2010 (<https://www.sec.gov/news/studies/2010/marketevents-report.pdf>).

58 Hache, F., A Missed Opportunity to Revive ‘Boring’ Finance?, pg. 37.

investment manager with infinitely patient investors to fight the trend, even if the trend is a deviation from fundamental value”.⁵⁹

b. Hidden / excessive leverage

i. Excessive leverage

The FSB defines leverage as a financial technique used to increase exposure, boost returns or take positions that can offset potential losses from other exposures (hedging). Leverage can take different forms (Figure 4). It can be financial – through borrowing via loans, bonds, repo and other SFTs – or synthetic using derivatives that create exposures whose value depends on the value of an underlying asset. Leverage can either be on the balance sheet of investors (e.g. loans or bonds) or off-balance sheet (e.g. by holding shares in investment vehicles that use leverage techniques or in special purpose vehicles created to finance the origination of risky assets).⁶⁰

Figure 4: Categories of leverage

	Financial (debt)	Synthetic (derivatives)
On balance sheet	Investor borrowing (e.g. via bonds, loans, and repos or others SFTs)	Investor derivative positions
Off balance sheet	e.g. CIV repo borrowing, mortgage-backed securities	e.g. CIV derivative positions

Source: Financial Stability Board (2023)

Excessive or hidden leverage is a source of vulnerability for the financial system and contributes significantly to the fragility of the financial system in general, and the NBFi sector in particular. The FSB notes that leverage, if not properly managed, creates a vulnerability that can propagate strains through the financial system, amplify stress, and lead to systemic disruption.⁶¹ Only recently, the FSB warned explicitly of the sovereign bond-backed SFT (repo) market as being particularly susceptible to a potentially dangerous buildup of leverage, due to low → haircuts and high levels of collateral reuse (rehypothecation).⁶²

Especially (highly) leveraged investment funds can generate or amplify risks such as market risks, liquidity risks and counterparty risks, which may lead to a misallocation

59 Rajan, R., Has Financial Development Made the World Riskier?, National Bureau of Economic Research Working Paper No. 11728, November 2005, pg. 21.

60 Financial Stability Board (FSB) The Financial Stability Implications of Leverage in NBFi, pg. 3.

61 Financial Stability Board (FSB), Leverage in Non-Bank Financial Intermediation. Final Report, 09 July 2025, pg. 5.

62 Financial Stability Board (FSB), Vulnerabilities in Government Bond-Backed Repo Markets, 04 February 2026, pg. 1.

of resources and to extreme losses for creditors.⁶³ In its recent study,⁶⁴ the European Securities and Markets Authority (ESMA) notes that “the use of excessive leverage by investment funds can entail risks to financial stability. Leverage can be used to hedge risks in portfolio positions, increase exposures and boost returns but it can also amplify stress to the financial system through two main channels: position liquidation and counterparty defaults.”⁶⁵

- The **position liquidation** channel involves deleveraging through unwinding of positions and asset sales. This occurs when an adverse shock leads to unexpected liquidity demands on leveraged positions from collateral or margin calls. Position liquidation, especially → fire sales under stressed market conditions, can depress asset prices further and cause a feedback loop of additional liquidity demands and risk reduction that impacts other market participants exposed to the same asset class.⁶⁶
- The **counterparty channel** involves the default or distress of leveraged entities, which can impose direct losses on their counterparties, leading to a cascade of financial stress. If a leveraged entity defaults, e.g. because its available liquidity is insufficient to meet counterparties’ collateral or margin calls, or if “mark-to-market” losses have entirely eroded its capital, the initial shock could also destabilise its counterparties. Shocks might also propagate without a default of the leveraged entity, e.g. if its counterparties decide to reprice or withdraw their financing from the leveraged entity.⁶⁷

In case of adverse market developments, leveraged entities might face large, unexpected declines in the mark-to-market value of derivatives positions and collateral posted, triggering liquidity demands through collateral or margin calls. Those demands might in turn lead to forced sales by leveraged entities which can increase market volatility and lead to adverse feedback loops. Risks related to the position liquidation channel crystallised in September 2022 during the mini-budget crisis in the UK. As yields on UK sovereign debt surged, funds pursuing **liability-driven investment (LDI)** strategies, and relying on leverage from repo and derivatives, faced large mark-to-market and collateral losses which resulted in margin and collateral calls. They responded by liquidating large amounts of long-dated UK government bonds. Exposures of LDI funds were highly concentrated and correlated so that forced selling spread across the sector, further amplifying the initial shock.⁶⁸

63 Lehecka, G. / Ubl, E., Analyzing the Systemic Risks of Alternative Investment Funds Based on AIFMD Reporting: A Primer, Oesterreichische Nationalbank (OeNB) Financial Stability Report 30, December 2015, pgs. 62-70.

64 European Securities and Markets Authority (ESMA), Risks in UCITS Using the Absolute Value-at-Risk Approach, ESMA50-524821-3660, 24 April 2025.

65 Financial Stability Board (FSB), Leverage in Non-Bank Financial Intermediation. Consultation Report, 18 December 2024, pg. 4.

66 Financial Stability Board (FSB), Leverage in Non-Bank Financial Intermediation. Final Report, 09 July 2025, pg. 5.

67 Financial Stability Board (FSB), Leverage in Non-Bank Financial Intermediation. Final Report, 09 July 2025, pg. 5.

68 European Securities and Markets Authority (ESMA), Risks in UCITS Using the Absolute Value-at-Risk Approach, ESMA50-524821-3660, 24 April 2025, pg. 4; European Systemic Risk Board (ESRB), EU Non-Bank Financial Intermediation Risk Monitor 2023, NBFIMonitor No. 8, June 2023, pgs. 27-37.

Adverse market developments can also result in large losses for leveraged entities and ultimately their collapse. An illustration of this counterparty default channel occurred in March 2021, with the collapse of **Archegos Capital Management**. Archegos was a US family office which built large leveraged positions on a few stocks during the course of Q1 2021. Archegos used equity swaps, where the bank counterparty delivers the performance of an underlying stock to its counterparty by buying the stock. Archegos mirrored its highly concentrated positions across a range of counterparties, which were unaware of the actual size of Archegos' aggregate positions. When prices moved adversely, Archegos faced large margin calls which it was unable to meet, triggering its default. Bank counterparties had to liquidate the underlying stocks they held, which - given the large market footprint of Archegos - resulted in liquidation losses above USD 10 bn.⁶⁹

In the banking sector, leverage is constrained, more or less successfully, by prudential metrics, especially regulatory capital requirements. It is a frequent contention, especially from asset managers, that investment funds are, by and large, not a channel of systemic contagion because they usually fund their activities by issuing equity (shares or units) and losses on the fund's investments are absorbed by share- or unitholders. Funds that operate without, or with moderate leverage should have ample capacity to absorb losses. For investment funds in the EU, leverage constraints apply only for a small part of the universe:

- Undertakings for Collective Investment in Transferable Securities (**UCITS**) are subject to regulatory constraints under Directive 2009/65/EC (UCITS Directive) that are designed to manage their overall risk exposure, including leverage. All UCITS funds must disclose in their prospectuses the method used to calculate global exposure: → commitment approach or (relative or absolute) → Value at Risk (VaR). When calculated in accordance with the → commitment approach, used by most UCITS, the **global exposure**, including positions acquired through derivatives, is **limited to 100%** of the fund's → Net Asset Value (NAV). For UCITS that calculate their global exposure under the absolute → Value at Risk (VaR) approach, VaR should not exceed 20% of the fund's → NAV.
- Alternative Investment Funds (**AIFs**) in the EU are not subject to a general limit on leverage. All AIFs have to report leverage under the → gross and → commitment methods. AIFs that employ **leverage "on a substantial basis"** are subject to additional reporting requirements. According to Art. 111 of Commission Delegated Regulation (EU) No 231/2013 (AIFMD Delegated Regulation) leverage is considered to be employed "on a substantial basis" when the exposure of an AIF, calculated according to the → commitment method under Article 8 of the AIFMD Delegated Regulation, exceeds three times its net asset value (NAV). **Art. 25(3)** of Directive 2011/61/EU (Alternative Investment Fund Managers Directive, AIFMD) empowers national competent authorities to impose leverage limits on funds if

69 European Securities and Markets Authority (ESMA), Leverage and Derivatives – The Case of Archegos, ESMA 50-165-2096, May 2022.

their use of leverage “contributes to the build up of systemic risk in the financial system or risks of disorderly markets”.

- Leverage limits were introduced recently for **“loan-originating AIFs”**, a new sub-category of AIFs established as part of the most recent round of amendments to the AIFMD⁷⁰ which is intended to address private debt funds. Art. 15(4a) of the amended AIFMD imposes **leverage limits** of 175% of the Net Asset Value for open-ended funds, and 300% of the Net Asset Value for closed-ended funds, with exposures calculated in accordance with the commitment method. These statutory leverage limits do not prevent competent authorities from imposing stricter leverage limits under Art. 25(3) of the AIFMD, where it is deemed necessary to ensure financial stability. Art. 15(4a) of the recently revised AIFMD II is due to be implemented by April 2026.

In the EU, high leverage among investment funds is typically associated with alternative investment funds (AIFs). A recent study by the ECB⁷¹ illustrates both the degree to which leverage is used in some segments of the AIF sector as well as the scale (Figure 5). LDI funds, which were at the centre of the UK's mini-budget crisis in September 2022, are at one end of the spectrum with comparatively lower, but still substantial leverage. At the other end of the spectrum, a small number of hedge funds (fewer than 100) with total Assets under Management (AuM) in excess of EUR 200 bn operate with very high degrees of leverage.

Figure 5: Leverage in EU Alternative Investment Funds (AIFs)

	Hedge funds: other	Hedge funds: rel. value	LDI funds: EUR	LDI funds: GBP	Other funds
Number of AIFs	79	17	42	180	337
Assets under management AuM in EUR billions	167.1	55.7	92.6	348.9	383.1
Net asset value NAV in EUR billions	11.5	1.9	17.0	67.8	74.7
Overall leverage					
Gross leverage (AuM / NAV)	14.5	29.4	5.4	5.1	5.1
Net leverage (commitment method)	7.7	19.5	3.4	3.4	2.2

Source: ECB (2025)

70 Directive (EU) 2024/927 of the European Parliament and of the Council of 13 March 2024, OJ L 927, 26 March 2024, pgs. 1-47.

71 Bouveret, A. / Ferrari, M. / Grill, M. / Molestina Vivar, L. / Schmidt, D.J. / Weistroffer, C., Leveraged Investment Funds: A Framework for Assessing Risks and Designing Policies, European Central Bank (ECB) Macroprudential Bulletin No. 26, January 2025.

UCITS are subject to a regulatory cap and are therefore not usually suspected of using excessive leverage. A recent study by the ESMA⁷² found, however, that “the maximum leverage that can be attained under the absolute VaR approach can reach several multiples of the NAV”. Some UCITS, in particular so-called “alternative UCITS” or “liquid alternative” funds, which combine complex, hedge fund-like investment strategies with a higher degree of liquidity for investors (by offering more frequent, often daily redemptions) operate with gross leverage in excess of 400% and above.

In its April 2025 Financial Stability Report,⁷³ the International Monetary Fund observes that “some financial institutions could come under strain in volatile markets, especially highly leveraged ones. As the hedge fund and asset management sectors grow, so have their aggregate leverage levels and the nexus with the banking sector from which they borrow, raising the spectre of weakly managed NBFIs being pushed to deleverage when they face margin calls and other liquidity needs. The ensuing sell-off and deleveraging spiral could exacerbate market turmoil, with implications for the broader financial system.” With respect to the US, in particular, the IMF points out that “banks have shifted balance sheet focus toward the provision of loans, commitments, and other exposures to NBFIs. US banks’ loans and commitments to NBFIs increased from about 6% of total loans and commitments in 2010 to about 16%, equivalent to almost 120% percent of bank regulatory capital, as of the third quarter of 2024.” Hedge funds, in particular, are singled out for their reliance on bank funding, particularly from G-SIBs: they depend on banks for more than 50% of their total funding. The IMF goes on to note that “asset managers have significantly expanded their use of leveraged positions in recent years, especially by employing long futures positions in Treasuries and US equities.”⁷⁴

The ECB and ESRB noted in a recent report⁷⁵ that EU banks’ credit exposures to potentially leveraged NBFIs are concentrated in G-SIBs, mainly via repo lending to hedge funds and securities trading firms. They estimate that ca. EUR 432 bn, or ca. 26% of Eurozone banks estimated total exposures to NBFIs (EUR 1.66 tn) are to such leveraged entities. The report notes that a lack of transparency regarding the operating structures and leverage of NBFIs limits the ability to fully assess the financial stability risks related to these exposures but observes that the short-term nature of collateralised lending to leveraged entities could amplify volatility and liquidity bottlenecks in stressed market conditions.

72 European Securities and Markets Authority (ESMA), Risks in UCITS Using the Absolute Value-at-Risk Approach, ESMA50-524821-3660, 24 April 2025.

73 International Monetary Fund (IMF), Global Financial Stability Report: Enhancing Resilience Among Uncertainty, April 2025, pg. 9.

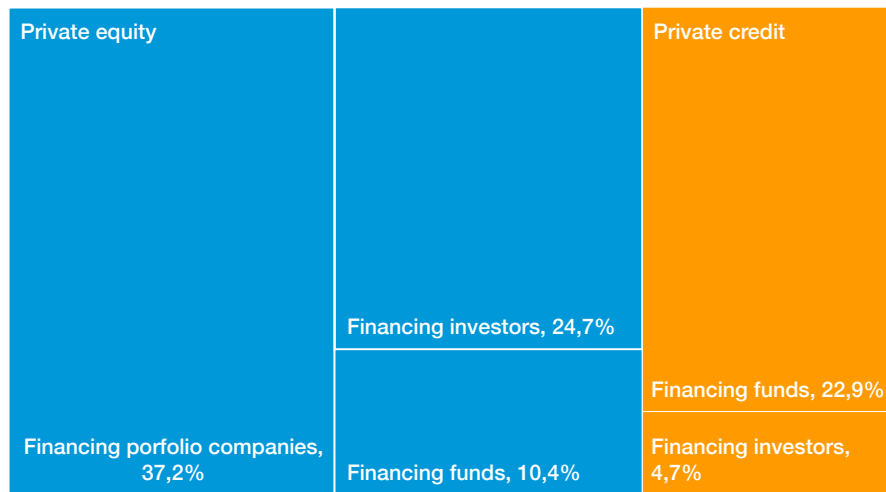
74 International Monetary Fund (IMF), Global Financial Stability Report: Enhancing Resilience Among Uncertainty, April 2025, pg. 12.

75 European Central Bank (ECB) / European Systemic Risk Board (ESRB), Financial Stability Risks from Linkages Between Banks and the Non-Bank Financial Intermediation Sector, February 2026.

ii. Hidden leverage

Part 1 of this report featured a detailed description of the rise of private equity and debt funds and its complex relationships with banks and other parts of the NBFIs sector.⁷⁶ Probably the single biggest concern among regulators is the degree of hidden leverage involved in the multi-layered borrowing arrangements between banks, fund managers, their investors, the funds and their portfolio companies. According to a recent study by the European Central Bank (ECB),⁷⁷ direct lending to private equity funds accounts for only one-third of banks' total exposure, with the remainder divided quite evenly between fund investors and portfolio companies.

Figure 6: Eurozone banks' aggregate exposures to private equity / credit



Source: European Central Bank (ECB) (2024)

The pricing of leverage in financial markets – through interest or swap rates, haircuts, and margins – critically depends on market participants' assessment of the overall level of debt exposure (and capacity) of the individual borrower or counterparty as well as of the overall level of debt in the system. Even in their weak form, efficient markets will only price in information about (individual or aggregate) leverage that is known. In both instances, therefore, hidden leverage has the potential to result in **large-scale mispricing of credit** and/or counterparty risk.

In the EU, Art. 24(4) of the AIFMD requires managers of funds that employ leverage “on a substantial basis”⁷⁸ to disclose the aggregate amount of leverage of each of their funds but does not require a consolidated or aggregated position of the debt taken on by their portfolio companies. In fact, Recital 78 of the AIFMD states explicitly

⁷⁶ cf. Stiefmueller, C.M, Hidden Risks in NBFIs: Mapping Vulnerabilities from Shadow Banking, Finance Watch Report, 18 December 2025, Section II.B.c.iv. (pgs. 41-47).

⁷⁷ Galbarz, M.-C. / Lobbens, M. / Marquardt, P. / Villarreal Fraile, M. M., Complex Exposures to Private Equity and Credit Funds Require Sophisticated Risk Management, European Central Bank (ECB) Supervision Newsletter, 13 November 2024.

⁷⁸ Art. 111 of Delegated Regulation No. 231/2013 (AIFM Delegated Regulation) defines leverage on a substantial basis as total exposure, calculated under the commitment method, in excess of three times the NAV of the AIF.

that for private equity and venture capital funds, in particular, leverage that exists at the level of a portfolio company should not be taken into account when calculating leverage at the level of the AIF.⁷⁹ As a result, and as discussed previously, supervisors currently do not have adequate visibility on the **total amount of leverage** employed throughout the structure. Art. 24(2)(c) of the AIFMD has been amended recently⁸⁰ to provide supervisors with more comprehensive information, including the total amount of leverage. ESMA has been mandated to develop Level 2 technical standards on the scope, standardisation, frequency, and timing of these expanded reporting requirements and conducted a public consultation⁸¹ on this subject in 2025.

c. Maturity / liquidity mismatches

i. Causes and relevance

Maturity mismatches occur when the maturity of an asset, e.g. of a term loan or a fixed-income security, does not align with the maturity of the corresponding liabilities on the balance sheet of a financial institution. This is often the case when entities fund long-term investments with short-term liabilities. In the case of NBFIs, pension or investment funds might hold long-term assets, such as bonds or property, but offer short-term, e.g. daily, redemption options to their investors. The mismatch arises because investors' shares or units in a fund are repayable at short notice, while the assets held by the fund are illiquid and have longer maturities. When a large number of investors demand to redeem their investments at the same time, e.g. in response to an external shock, the fund manager may face difficulties in liquidating assets quickly enough to meet those redemption requests, potentially leading to → fire sales of assets, which have the potential to propagate and cause systemic instability.

Liquidity mismatches arise when an NBFIs holds illiquid or longer-term assets, such as fixed-income securities, but offers highly liquid liabilities, such as money-market funds with daily redemption options for investors. The mismatch occurs because the fund may not have sufficient cash reserves available to meet the immediate withdrawal demands of investors, particularly during periods of market stress. While money market funds may hold high-quality short-term assets, these assets are not always fully liquid, and their value may fluctuate in response to changing market conditions. When investors are allowed to redeem their shares or units on demand, but the assets held are not immediately liquid, the fund risks facing a liquidity crisis. A **structural liquidity mismatch** can be described as the difference between the redemption terms that an investment fund offers to investors and the amount of time it may take the

79 Recital 78 states that methods for determining leverage of AIFs should include “any financial and/or legal structures involving third parties controlled by the relevant AIF where those structures are specifically set up to directly or indirectly create leverage at the level of the AIF. In particular for private equity and venture capital funds this means that leverage that exists at the level of a portfolio company is not intended to be included when referring to such financial or legal structures.”

80 Directive (EU) 2024/927 of the European Parliament and of the Council of 13 March 2024, OJ L 927, 26 March 2024, pgs. 1-47.

81 European Securities and Markets Authority (ESMA), Discussion Paper on the Integrated Collection of Funds' Data, ESMA 12-2121844265-4904, 23 June 2025. This consultation closed on 21 September 2025.

fund manager to liquidate fund holdings and meet redemption requests in an orderly manner, i.e. without substantially increasing transaction costs and without substantially impacting prevailing market prices. A structural liquidity mismatch may cause concerns among investors about the safety and availability of their assets, lead to a loss of trust in the fund manager, and may drive “excess” redemptions that may ultimately force the fund manager to resort to → fire sales.

ii. General risks from maturity / liquidity mismatches

Maturity and liquidity mismatches are of particular concern in the shadow banking sector because NBFIs often offer liquidity to investors at terms which make them appear deposit-like, without being subject to the same regulatory safeguards as traditional, deposit-taking banks, such as regulatory capital and liquidity buffers.⁸² As a result, the risks associated with maturity and liquidity mismatches are magnified, particularly in times of economic or market stress.

Regulators and academics have identified several risks associated with maturity and liquidity mismatches in the shadow banking sector. The most immediate risk is the potential for **runs on funds** – the equivalent of a bank run by depositors in traditional banking. Investment funds that offer daily or short-term redemption options, such as money-market funds (MMFs) and open-ended investment funds – ETFs and other UCITS in the EU – are highly susceptible to sudden large-scale withdrawals. In the event of a market shock, investors may rush to redeem their investments, fearing that the institution may not be able to meet its obligations. This can lead to a rapid depletion of liquid assets, forcing the institution to sell long-term or illiquid assets at depressed prices, which may, in turn, further accelerate the market downturn and trigger a broader financial crisis.

Another significant risk is **procyclicality**, whereby the activities of shadow banks can exacerbate market fluctuations. In times of economic growth, NBFIs may increase their exposure to risky, illiquid assets due to the availability of cheap short-term funding. However, when market conditions deteriorate, these institutions may be forced to sell off assets to meet redemption demands, contributing to asset price declines and liquidity shortages. This cyclical behaviour can amplify financial instability, making the system more vulnerable to shocks.

Maturity and liquidity mismatches are particularly visible, and critical, money market funds (MMFs) and open-ended investment funds. Both these markets experienced periods of systemic instability in recent times which highlighted their vulnerability and potential to seriously jeopardise financial stability.

⁸² Stiefmueller, C.M, Hidden Risks in NBFIs: Mapping Vulnerabilities from Shadow Banking, Finance Watch Report, 18 December 2025, pg 21-22.

iii. Liquidity risk management: Money market funds

In its 2013 report on shadow banking,⁸³ the Financial Stability Board (FSB) identified several key areas of concern and outlined a series of policy recommendations to address maturity and liquidity mismatches. In response to the episode of market turmoil in March 2020, which particularly affected money market funds (MMFs), the FSB published a set of proposed measures to improve their resilience and address vulnerabilities.⁸⁴ The FSB noted, in particular, that MMFs are exposed to credit risk and even relatively small changes in credit risk may cause investors to abruptly lose confidence in the capacity of MMFs to maintain principal stability.⁸⁵ Changes in credit risk may be particularly damaging to investor confidence in CNAV and LVNAV MMFs. For LVNAV MMFs, in particular, regulatory thresholds which allow or force funds to impose a fee or gate on redemptions or reprice their shares, may cause investors to pre-emptively redeem their shares to avoid being exposed to these consequences (*cliff effects*). Institutional investors may amplify the risk of redemptions in stressed market situations, e.g. when forced to meet margin calls.

In its 2021 report, the FSB discusses a range of potential measures and tools and points out the potential tension between incompatible options that pull MMFs in different directions, i.e. making them either more cash-like or more investment-like.⁸⁶ One direction would involve features to support principal stability, such as a capital buffer, while the other would call for removing the stable NAV, adopting limits on eligible assets, or moving away from daily dealing. The FSB proposed a range of structural measures and Liquidity Management Tools (LMTs).

Structural measures include (i) capital buffers, (ii) the removal of certain features, such as stable NAVs (e.g. for LNAV MMFs); (iii) limits on eligible assets. Liquidity Management Tools comprise, in particular, anti-dilution/price-based LMTs, such as → swing pricing. A key aspect of the FSB's recommendations is the introduction of **liquidity buffer requirements**. These buffers are designed to ensure that institutions have cash reserves to meet redemption demands without resorting to asset sales.⁸⁷

The FSB also calls for enhanced **transparency and disclosure** requirements, which would provide regulators and investors with clearer information about the maturity and liquidity profiles of the assets held by NBFIs. This would help to mitigate the risks associated with liquidity mismatches by allowing for more accurate risk assessments. Furthermore, the FSB recommends **stress testing** for NBFIs to assess their resilience under adverse market conditions, better understand their exposure to liquidity risks, and take preemptive measures to address potential vulnerabilities.

⁸³ Financial Stability Board (FSB), Strengthening Oversight and Regulation of Shadow Banking. An Overview of Policy Recommendations, 29 August 2013.

⁸⁴ Financial Stability Board (FSB), Policy Proposals to Enhance Money Market Fund Resilience. Final Report, 11 October 2021.

⁸⁵ Financial Stability Board (FSB), Policy Proposals to Enhance Money Market Fund Resilience. Final Report, pg. 21.

⁸⁶ Ibid, pg. 41.

⁸⁷ Mack, S., Out of the Shadow, pgs. 5-6.

iv. Liquidity risk management: Open-ended investment funds

With respect to open-ended funds, the FSB⁸⁸ and IOSCO⁸⁹ have proposed a range of measures and tools to manage liquidity and mitigate the impact of mismatches. These measures and tools may be broadly categorised as follows⁹⁰:

- **Ex-ante measures** to reduce structural liquidity mismatch through liquidity risk management and by increasing the liquidity of funds' assets and/or by reducing the liquidity funds offer to their investors (e.g., by lowering redemption frequency and/or lengthening notice/settlement periods). These measures are intended to reduce vulnerabilities from structural liquidity mismatch and hence the likelihood of "excess" redemptions leading to forced asset sales.
- **Ex-post measures and tools** that reduce shock amplification and transmission arising from structural liquidity mismatch in open-ended funds. They include (i) anti-dilution/price-based LMTs, which operate by imposing the cost of liquidity to redeeming investors (e.g. through → swing pricing or anti-dilution levies); (ii) quantity-based LMTs (suspensions and redemption gates), which operate by limiting the amount of liquidity available to redeeming investors; and (iii) other liquidity management measures, such as redemptions in-kind and side pockets.

Anti-dilution LMTs, if operationalised effectively, can strengthen the resilience of open-ended investment funds by reducing incentives for investors to seek a "first-mover advantage" by redeeming early and, as a result, preventing "excess" asset sales. By themselves, without accompanying ex-ante measures, such as mandatory liquidity buffers, overreliance on LMTs may incentivise fund managers to pursue riskier strategies advertising higher target returns, on the assumption that the cost of liquidity mismatches can be passed on entirely to investors. Quantitative LMTs may also have unintended consequences: in stressed market conditions investors may seek to anticipate the introduction of quantity-based LMTs by redeeming even earlier, which may increase excess redemptions and accelerate the propagation of systemic instability. To be effective, ex-post LMTs should therefore be considered and applied in conjunction with appropriate ex-ante measures, especially liquidity buffers.

d. Operational risk

Operational risks arise from failures in internal processes, systems, people, or external events. In recent times they are increasingly recognised as potential sources of systemic risk in financial institutions and market infrastructures. As financial systems become more digitised and interdependent, a single point of failure – such as a cyber-attack, IT outage, or data integrity issue – can propagate rapidly across institutions and markets, triggering system-wide disruption.

88 Financial Stability Board (FSB), Revised Policy Recommendations to Address Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds, 20 December 2023.

89 International Organization of Securities Commissions (IOSCO), Anti-Dilution Liquidity Management Tools – Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes, 20 December 2023.

90 Financial Stability Board (FSB), Revised Policy Recommendations to Address Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds, pgs. 10-11.

The Financial Stability Board (FSB) notes in a recent report⁹¹ that “operational risk events, particularly those related to cyber incidents and third-party dependencies, can undermine confidence in financial institutions”. Operational disruptions in financial market infrastructures (FMIs), such as payment systems, financial data providers, Central Securities Depositories (CSDs), or Central Counterparties (CCP) can be particularly critical. Failures in FMIs can lead to gridlock in transactions, liquidity shortages, and loss of confidence in the broader financial system”. The NBFIs sector, with its myriad of interconnections and, in some segments, advanced degree of digitalisation, is seen by many observers as equally vulnerable. Events like system outages at major financial institutions or ransomware attacks highlight how operational risks could have far-reaching impacts and damage trust in the functional integrity of the financial system.

Given this interconnectedness, operational risks – once seen as idiosyncratic – can now pose system-wide vulnerabilities. The European Systemic Risk Board (ESRB) summed up this shift, noting that operational risks, particularly from ICT disruptions, are no longer merely firm-specific, but can propagate across systems and borders.⁹² The European Union has been among the first jurisdictions to address these growing threats introducing two major legislative instruments, Directive (EU) 82022/2557 (Critical Entities Resilience Directive, CER), and Regulation (EU) 2022/2554 (Digital Operational Resilience Act, DORA). Directive (EU) 82022/2557, which came into force in January 2023, aims to strengthen the resilience of critical infrastructure – including financial services – against physical and hybrid threats. It mandates risk assessments, continuity planning, and enhanced cooperation between Member States and critical entities. Rather more importantly, Regulation (EU) 2022/2554 specifically targets ICT-related operational risk in the financial sector. It spans all sectors of the financial industry, including most NBFIs, and requires financial entities to implement robust cybersecurity, incident reporting, and digital resilience testing frameworks. Uniquely, DORA also regulates critical third-party ICT providers (CTPPs), such as providers of ICT.

91 Financial Stability Board (FSB), Final Report on Enhancing Third-Party Risk Management and Oversight – A Toolkit for Financial Institutions and Financial Authorities, 04 December 2023.

92 European Systemic Risk Board (ESRB), Systemic Cyber Risk, 19 February 2020, pgs. 10-11.

II. And so? Regulatory implications

A. Managing systemic risk

The interconnectedness of the banking and NBFIs sectors should be reflected in a more comprehensive, integrated approach towards supervision. The assumption that financial markets in general, and the NBFIs sector in particular, have limitless capacity to absorb risk appears no longer tenable. However, if **risk-absorbing capacity** is indeed **a finite resource** it becomes a responsibility of the government to ensure that it is allocated in ways that are fair, transparent, and aligned with the public interest. This would suggest a more robust and proactive stance, especially when it comes to vetting financial products and practices. Excessive risk-taking behaviour that makes disproportionate use of the risk absorbing capacities of the financial system, and imposes negative externalities on the general public – in the form of systemic risk, should be discouraged by stricter regulation.

In practice, this would require a mandate for supervisors to take a comprehensive, cross-sectoral approach towards **managing systemic risk**. Prior to the Global Financial Crisis only the banking sector was considered large and structurally risky enough to cause serious disruption to the real economy. The Global Financial Crisis, arguably the first major crisis attributable in large part to the uncontrolled growth and inadequate regulation of the NBFIs sector,⁹³ has shone a light on the fragility of other sectors besides banking, and of the financial system as a whole. Any one of the risk factors in Section I. B. should be assessed on a cross-sectoral basis to identify and address systemic vulnerabilities. In the EU, this would require a significant upgrade of the role, powers, and capacities of the **macroprudential supervisor**, both at the EU level and in the Member States. In addition to its advisory and coordinating functions, the EU macroprudential supervisor should be given a mandate to actively harmonise macroprudential supervision and promote supervisory convergence, in close cooperation with the sectoral supervisory authorities and with a specific focus on the linkages between sectors where regulatory arbitrage thrives and systemic risk tends to accumulate.

B. Policy recommendations

a. Regulatory perimeter and interconnectedness

Current EU legislation in the NBFIs sector suffers from a number of significant blind spots, which create gaps in the regulatory framework, encourage regulatory arbitrage, and, collectively, leave the financial sector exposed to systemic vulnerabilities. This section proposes a number of measures which the EU should implement to improve the stability of the NBFIs sector.

93 Gorton, G./ Metrick, A., Securitised Banking and the Run on Repo, Journal of Financial Economics, vol. 104/3 (2012), pgs. 425-451.

i. Private asset management (e.g. family offices)

Family offices are private companies, usually run by professional asset managers who are responsible for investing the funds of high net-worth individuals, families, or private foundations. At present, most family offices are not covered by relevant legislation, such as the UCITS Directive and the AIFM Directive, as they do not manage capital raised from external investors or sell units of their funds to the public. The collapse of Archegos in 2021, which ultimately led to the demise of Cr dit Suisse one year later, served as a stark reminder of the potential risk of excluding these entities from the regulatory perimeter. While Archegos was legally a family office, based in the US, it implemented hedge fund-like strategies without being subject to the regulatory and reporting requirements at entity level that apply to hedge funds. As a result, regulators did not have the ability to identify risks, including high leverage and concentrated exposures. Lack of transparency and data gaps around family offices and their exposures and strategies limit the risk assessment by regulators and supervisors. In the EU, family offices are subject to transaction-level reporting for derivatives, under EMIR, and for securities lending, repo, buy-sell backs or margin lending transactions, under the Securities Financing Transactions Regulation, but not currently subject to any reporting requirements at entity level.⁹⁴ The issue also extends beyond family offices, with other large non-bank institutions, such as **endowments** and **sovereign wealth funds**, currently not subject to any reporting requirements at entity level.⁹⁵

Finance Watch recommends that private asset management entities – such as family offices, endowments and sovereign wealth funds – be subject to reporting requirements at entity level.

ii. Financial conglomerates (FiCoD)

Financial conglomerates are defined in the Financial Conglomerates Directive (FiCoD)⁹⁶ as groups with at least one entity in the insurance sector and at least one entity in the banking/investment sector, with significant activities in both sectors. This definition builds on the “bancassurance” business model, which had its heyday in the 1990s, and betrays the age of FiCoD, which dates back to 2002 and has not been updated substantively since 2011. Today, its scope is widely recognised as being too narrow: asset managers (pension funds and other investment funds) also control large pools of investable assets and engage in many of the same shadow banking activities as insurers. More recently, the increasing engagement of large digital platform operators in financial services has prompted supervisors to observe

⁹⁴ European Securities and Markets Authority (ESMA), Leverage and Derivatives – The Case of Archegos, ESMA 50-165-2096, May 2022.

⁹⁵ Ibid.

⁹⁶ Directive 2002/87/EC of 16 December 2002 on the Supplementary Supervision of Credit Institutions, Insurance Undertakings and Investment Firms in a Financial Conglomerate, OJ L 35, 11 February 2003, pgs. 1–27.

that – unlike banks, insurers, and financial conglomerates – these groups, which may comprise a variety of financial intermediaries, are not subject to prudential consolidation and/or consolidated (or conglomerate) supervision.⁹⁷

In its 2017 review,⁹⁸ accompanied by a public consultation, the Commission conceded that “there have also been a number of changes in the market which has led to the emergence of different types of mixed financial activity groups which FiCoD did not envisage due its original focus on bancassurance groups.” Despite that, no legislative proposal has been forthcoming so far. An **update of FiCoD is overdue** and should ensure that a wider range of diversified financial groups, not limited to banks and insurers but including investment firms and digital platforms operators, become subject to continuous, group-level supervision.

Finance Watch recommends that FiCoD be reviewed to extend its scope to a wider range of diversified financial groups, not limited to banks and insurers but including investment firms and digital platform operators. All such diversified financial groups should become subject to continuous, group-level supervision.

iii. Bank Structural Reform (BSR)

Global investment banks, nearly all of them subsidiaries of G-SIBs, are among the largest OFIs and literally the linchpin between banking and the NBFi sphere. They have proven to be prime channels of contagion during the Global Financial Crisis of 2007-09. There is little to suggest that the tensions and conflicts of interest inherent in combining commercial banking and investment banking activities under one roof, without structural separation, have in any way abated. Rather to the contrary, EU policymakers and regulators are under immense pressure by European G-SIBs at this very moment to depart ever more from the post-crisis prudential consensus of Basel III to help them expand their access to, and engagement in the NBFi markets.⁹⁹

EU policymakers should pause for thought and heed the repeated warnings from regulators and supervisors about the build-up of systemic risk in the shadow banking sector.¹⁰⁰ As in the case of *Crédit Suisse*, the prospect of a G-SIB being restructured or resolved according to plan, and without taxpayer support, remains hypothetical.

97 Joint Committee of the European Financial Supervisory Authorities, 2023 Stocktaking of BigTech Direct Financial Services Provision in the EU, 01 February 2024.

98 European Commission, Staff Working Document on Directive 2002/87/EU on the Supplementary Supervision of Credit institutions, Insurance Undertakings and Investment Firms in a Financial Conglomerate (FiCoD), SWD (2017) 272 final, 13 July 2017, pg. 52.

99 European Commission, Proposal for a Regulation of the European Parliament and of the Council, amending Regulation (EU) No 575/2013 on Prudential Requirements for Credit Institutions as regards Requirements for Securitisation Exposures, COM(2025) 825 final, 17 June 2025.

100 International Monetary Fund (IMF), Global Financial Stability Report: Enhancing Resilience Among Uncertainty, April 2025; Financial Stability Board (FSB), Global Monitoring Report on Non-Bank Financial Intermediation 2024, December 2024; European Systemic Risk Board (ESRB), EU Non-Bank Financial Intermediation Risk Monitor (NBFi Monitor) No 9, June 2024; et al.

While bank lobbyists are once again touting the benefits of the **originate to distribute** model, and geopolitical tensions are instrumentalised to justify a revival of this risky model for the sake of competitiveness, EU taxpayers are at risk once again. Even more perniciously, political and regulatory support for a handful of European G-SIBs, the sole potential beneficiaries of a return to this pre-crisis regulatory mindset, will implicitly tilt the scales of competition in their favour – not with regard to their overseas rivals, with whom they compete in the wholesale and investment banking markets, but against their smaller peers in EU domestic markets.

In October 2017, the EU legislators passed up on the opportunity to put the European banking sector on a new, solid footing for the long term by withdrawing the legislative proposal on **Bank Structural Reform (BSR)**.¹⁰¹ In the UK, where “ring-fencing” was introduced in 2019, as recommended by the Vickers Report,¹⁰² banks are pushing hard for a repeal of the unloved reform, which would strengthen the position of UK and international G-SIBs at the expense of smaller banks and building societies.¹⁰³ The refusal on the part of policymakers to recognise the long-term benefit to the economy of a stable banking system with solid, self-sustaining commercial and investment banks is regrettable, and prioritises short-term financial gains for the banking industry over the public interest. EU policymakers should instead reconsider the recommendations of the **Liikanen Report**,¹⁰⁴ preferably before the next financial crisis hits.¹⁰⁵

Finance Watch recommends that Bank Structural Reform be implemented to organisationally separate commercial banking and investment banking activities.

iv. Sectoral exposure limits

Existing prudential regulation for banks, in particular Art. 395(2) of the Capital Requirements Regulation (CRR III), already provides safeguards to limit EU banks' exposures to NBFIs that conduct activities resembling traditional banking. The European Banking Authority (EBA) issued Guidelines¹⁰⁶ in December 2015 to operationalise this

101 European Commission, Proposal for a Regulation of the European Parliament and of the Council on Structural Measures Improving the Resilience of EU Credit Institutions, COM(2014) 43 final, 29 January 2014.

102 U.K. House of Commons Library, The Independent Commission on Banking: The Vickers Report and the Parliamentary Commission on Banking Standards, 30 December 2013.

103 KPMG (UK), Ring-Fencing Reform: Lowering the Barriers? Potential Impacts for the UK Banking Market, 03 June 2025.

104 European Commission, High-Level Expert Group on Reforming the Structure of the EU Banking Sector. Final Report, 02 October 2012.

105 For a more comprehensive review of Finance Watch's position on Bank Structural Reform see Lindo, D., The Importance of Being Separated. Making the Public Interest Sovereign over Banks, Finance Watch Policy Note, 08 April 2013; and Lindo, D. / Hanula-Bobbitt, K., Europe's Banking Trilemma. Why Banking Reform Is Essential for a Successful Banking Union, Finance Watch Report, 05 September 2013.

106 European Banking Authority (EBA), Guidelines on Limits on Exposures to Shadow Banking Entities Which Carry Out Banking Activities Outside a Regulated Framework under Article 395(2) of Regulation (EU) 575/2013, EBA/GL/2015/20, 14 December 2015.

provision. These Guidelines instruct banks to set both individual and aggregate limits on exposures to shadow banking entities but refrain from specifying any aggregate limits.

Art. 395(2a) of the Capital Requirements Regulation, which was added in May 2024, mandates the EBA to update these **Guidelines** by 10 January 2027 while taking due account of “the contribution of shadow banking entities to the Capital Markets Union, the potential adverse impact that any changes of those guidelines, including additional limits, could have on the business model and risk profile of the institutions and on the stability and the orderly functioning of financial markets.” The EBA, in consultation with ESMA, is also called upon to issue a report, by 31 December 2027, on “the contribution of shadow banking entities to the Capital Markets Union and on institutions’ exposures to such entities, including on the appropriateness of aggregate limits or tighter individual limits to those exposures”. If deemed appropriate, the Commission may submit a **legislative proposal** on exposure limits to shadow banking entities on the basis of that report by 31 December 2028.

It seems quite clear, also from supervisors’ comments, that there is a degree of unease about banks’ exposures to the NBFIs sector. The wording of Art. 395(2a) seems to suggest that concerns about the business model and risk profile of the institutions involved are to be accorded the same weight by the EBA in its review as concerns about financial stability and the orderly functioning of financial markets, which appears peculiar from a public interest perspective. It is perhaps testimony to the extent to which the (de)regulatory pendulum has swung back that the (distinctly private-sector) interest in preserving the business model of a bank is ranked on a par with the stability of the financial system as a whole. It will be for the EBA’s forthcoming guidelines and report to restore this balance by introducing individual and aggregate ceilings for NBFIs exposures.

Finance Watch recommends that the EBA specify individual and aggregate ceilings for banks’ exposure to the NBFIs sector.

v. Transparency and data collection

A recurring theme in the context of regulating the NBFIs sector, and a constant hindrance to effective supervision, is the dearth of comprehensive, and sufficiently granular data.¹⁰⁷ Perhaps the most pressing needs are in the fields of private equity and credit, and indirect synthetic exposures, e.g. between hedge funds and prime brokers. In its April 2025 Global Financial Stability Report,¹⁰⁸ the IMF rightly emphasises the importance of strengthening data availability for risk monitoring and assessment. Market participants and supervisors must be in a position to take a systemwide view

¹⁰⁷ European Central Bank (ECB) / European Systemic Risk Board (ESRB), Financial Stability Risks from Linkages Between Banks and the Non-Bank Financial Intermediation Sector, February 2026, pgs. 63-69.

¹⁰⁸ International Monetary Fund (IMF), Global Financial Stability Report: Enhancing Resilience Among Uncertainty, April 2025, pg. ix.

of risks and single out poorly governed institutions that take excessive risks. Better data will also ensure that competent authorities have the appropriate tools to manage these risks effectively. Given the global reach of the NBFi sector international cooperation is necessary and further work by the international standard setters in this regard, including examinations of cross-border and cross-sector interconnectedness, should be encouraged. As a starting point, system-wide stress tests – such as the Bank of England’s System-Wide Exploratory Scenario (SWES) – could help identify and quantify risks to the resilience of EU financial markets, especially those arising from cross-sectoral interconnectedness. While conventional stress testing tends to focus on individual entities or groups of entities within the same sector, system-wide stress tests simulate the response of a diverse set of market participants to a particular scenario and could thus contribute to a better understanding of the propagation of shocks in light of financial vulnerabilities between the banking and NBFi sectors.

Data collection and sharing practices among supervisors and between central banks and supervisors should be improved to ensure that comprehensive and granular NBFi data are made available to all competent authorities in a timely and efficient manner.¹⁰⁹ As in other areas of the financial services industry, the use of regulatory technology (RegTech) should be explored to improve the flow of information and allow for supervision in near-real time.¹¹⁰

Finance Watch recommends the adoption of system-wide stress tests, which should be conducted at regular intervals and encompass a comprehensive sample of institutions in all EU Member States and across relevant sectors, including banks, NBFi, and financial infrastructure providers.

Finance Watch recommends that data collection and sharing practices among supervisors, and between central banks and supervisors, be improved to ensure that comprehensive, consistent, and granular NBFi data are made available to all competent authorities in a timely and efficient manner. The use of regulatory technology (RegTech) should be explored to improve the flow of information and allow for supervision in near-real time.

vi. Holistic supervision

Improvements in transparency and data collection will lead to better, more efficient supervisory outcomes only if they are placed in the right hands, and supervisors have a comprehensive, holistic overview of the market, and the requisite powers to take corrective action. At present, supervision of capital markets in the EU, including the NBFi sector, is fragmented largely along national lines. To overcome this fragmentation

¹⁰⁹ Financial Stability Committee (FSC) High Level Task Force on Non-Bank Financial Intermediation, Eurosystem Response to the EU Commission’s Consultation on Macroprudential Policies for Non-Bank Financial Intermediation (NBFi), November 2024, pgs.13-14.

¹¹⁰ Stiefmueller, C.M., Lost Momentum: The Evolution and Challenges of Basel III, Finance Watch Report, September 2024, pgs. 33-38.

national competent authorities (NCAs) could be empowered to form **supervisory colleges**, analogous to long-standing practice in the banking and insurance sectors.

The coordinating **role of ESMA** could be reinforced by granting it powers to take EU-wide macroprudential measures, based on recommendations from the ESRB, to address systemic vulnerabilities that threaten the financial stability of several Member States or of the EU as a whole.¹¹¹ Over time, ESMA should be entrusted with the supervision of large, systemically important NBFIs with activities in multiple EU Member States. To be effective this would, however, require a fundamental review of ESMA's statutes, powers, and governance arrangements.

Finance Watch recommends that the EU adopt holistic, EU-wide macroprudential supervision of capital markets, covering all NBFIs activities of systemic relevance. ESMA as the EU supervisor should be given adequate access to market information and supervisory powers. ESMA's statutes, powers and governance should be reformed.

b. Excessive / hidden leverage

Excessive or hidden leverage is a source of vulnerability for the financial system and contributes significantly to the fragility of the financial system in general, and the NBFIs sector in particular. Improvements to the regulatory framework should be envisaged on two levels: (i) reporting and disclosure requirements for NBFIs to provide regulators and supervisors with a more complete picture of the health of both individual entities and of the sector as a whole; and (ii) regulatory instruments, such as limits (caps) to enable supervisors to react to potentially dangerous levels of leverage.

i. Leverage disclosures and limits

Reporting and disclosure requirements

As a starting point to identify and address the build-up of excessive financial and/or synthetic leverage it is necessary for regulators and supervisors to obtain a more comprehensive, and timely information on exposures, both at the level of individual entities and, just as importantly, at an aggregate level. In some areas, such as securities financing, and some segments of derivatives, transaction-level information exists, e.g. in the form of trade repositories. All too often, however, this **information is siloed** and not cross-referenced back to the entities involved. Integrating entity-level information with transaction-level data on derivatives and repurchase agreements would allow supervisors to better understand and monitor the use of leverage, e.g. in alternative investment funds, and assess its implications for financial stability.¹¹²

¹¹¹ Financial Stability Committee (FSC), Eurosystem Response to EU Commission's Consultation on Macroprudential Policies for NBFIs, pg. 16.

¹¹² Bouveret, A. / Ferrari, M. / Grill, M. / Molestina Vivar, L. / Schmidt, D.J. / Weistroffer, C., Leveraged Investment Funds: A Framework for Assessing Risks and Designing Policies, European Central Bank (ECB) Macroprudential Bulletin No. 26, January 2025.

Concerns about excessive leverage are particularly prevalent in **Private Equity** and **Private Debt funds**¹¹³ (Section II.2.3.4) where debt financing is added at multiple levels but not reported on a consolidated (or aggregated) basis. The most recent iteration of the AIFM Directive (AIFMD II), which is due to be fully implemented by Member States by April 2026, has introduced statutory leverage limits, but only for Private Debt funds (→ “loan-originating” AIFs). For Private Equity funds, the carve-out provided by Recital 78 remains in place, and the **aggregate leverage at the portfolio level** therefore remains difficult to assess. Moreover, with leverage at the portfolio level thus left out of the assessment, the right for supervisors to intervene under Article 25 of the AIFMD also becomes moot. While it may be premature, perhaps, to set and enforce individual and/or aggregate leverage limits for AIFs without a more complete evidence base it would certainly be feasible, and useful, to build up the necessary datasets. For this purpose alone, a **consolidated reporting obligation**, as recommended by ESMA,¹¹⁴ would seem amply justified.

In other areas, blind spots could also be addressed by means of additional disclosures. To detect the accumulation and concentration of risk, e.g. between hedge funds and prime brokers (as in the case of Archegos), investment funds should be obliged to provide regular, and specific disclosures of their direct and indirect, financial and synthetic **exposures to specific counterparties**. This obligation could be linked to an aggregate threshold, e.g. in line with the definition of **“substantial leverage”** under Article 111(1) of the AIFMD Delegated Regulation. This is not a new suggestion and two arguments are usually raised against it:

- Investment funds, hedge funds in particular, set great store by keeping their investment strategies confidential and are likely to argue that their legitimate commercial interests are threatened by an obligation to provide details which could allow competitors to glean information about their positions and trading strategies; and
- Given the extensive use of SPV and SIVs in NBFIs transactions, information about the identities of the ultimate counterparties, which is necessary to aggregate exposures, may be difficult to produce and increase the regulatory burden on firms.

These arguments should be taken, as so often, with a pinch of salt. Firstly, commercial interests must not outweigh the public interest in preserving **financial stability**, which is a **global public good**.¹¹⁵ Taxpayers cannot be expected to subsidise private-sector profits by absorbing the negative externalities of excessive risk-taking. Secondly, information that is reported ex-post to supervisors is, by necessity, outdated and of limited use to competitors. Thirdly and finally, financial supervisors are already handling

113 Stiefmueller, C.M., Lost Momentum: The Evolution and Challenges of Basel III, Finance Watch Report, September 2024, pgs. 41-42.

114 European Securities and Markets Authority (ESMA), Review of the Alternative Investment Fund Managers Directive. Letter to Commissioner Valdis Dombrovskis, ESMA 34-32-550, 18 August 2020, pgs. 24-25.

115 e.g. Financial Stability Board (FSB), How is the Water? Continuing our Work to Preserve Financial Stability. Remarks by FSB Chair, Klaas Knot, at the Bank of Spain and CEMFI Fifth Conference on Financial Stability, Madrid, 12 June 2025.

commercially sensitive information in other areas of the financial industry on a daily basis. If market participants are able to demonstrate a legitimate concern, supervisory reports containing sensitive commercial information could be marked accordingly and **sensitive data exempted** from publication.

Finance Watch recommends extending reporting requirements for investment funds for supervisors to be able to monitor leverage build up in the financial system, specifically:

- Private equity and private debt funds should report leverage on the consolidated basis, i.e. both at the level of the fund and the structures they invest in (SPVs).
- Investment funds should be obliged to provide regular, and specific disclosures of their direct and indirect, financial and synthetic exposures to specific counterparties such as prime brokers.

Calculation methods

Three approaches, in total, are currently permitted under the UCITS and AIFM Directives to report leverage:

- The → gross method under Art. 19 of the AIFM Directive and Art. 7 of AIFMD Delegated Regulation 231/2013. It is not available for UCITS.
- The → commitment method under Art. 19 of the AIFM Directive for AIFs, and Art. 51(3) of the UCITS Directive, Art. 41(3) of Commission Implementing Directive 2010/43 (UCITSD Implementing Directive), and Section 2 of the CESR Guidelines¹¹⁶ for UCITS.
- The → Value at Risk (VaR) method is permitted/required under Art. 41(3) of Commission Implementing Directive 2010/43 (UCITSD Implementing Directive) and Section 3 of the Committee of European Securities Regulators (CESR) Guidelines for UCITS which (i) engages in complex investment strategies, (ii) has significant exposure to exotic derivatives, or (iii) the commitment approach does not adequately capture the market risk of the portfolio.¹¹⁷ It is not available under the AIFMD.

It is worth noting that Article 41(3) of the UCITSD Implementing Directive gives member-state legislators the option to allow UCITS managers to calculate global exposure by using “the commitment approach, the value at risk approach or other advanced risk measurement methodologies as may be appropriate”. In practice, however, Value at Risk appears to be the only methodology implemented to date in member-state legislation. This method is widely used throughout the financial industry to model market risk but has well-known shortcomings, which were discussed extensively around the

¹¹⁶ Committee of European Securities Regulators (CESR), Guidelines on Risk Measurement and the Calculation of Global Exposure and Counterparty Risk for UCITS, CESR/10-788, 28 July 2010.

¹¹⁷ European Securities and Markets Authority (ESMA), Risks in UCITS Using the Absolute Value-at-Risk Approach, ESMA50-524821-3660, 24 April 2025, pg. 5.

time of the Global Financial Crisis.¹¹⁸ In particular, VaR does not provide any estimate of the potential loss incurred in case of a so-called “tail event”,¹¹⁹ which may be very large. Other, advanced risk measurement methodologies, such as → Expected Shortfall (ES),¹²⁰ should be considered.

Section I B. b. i. demonstrates how the absolute VaR approach, in particular, permits certain UCITS to acquire leverage that is on a par with hedge funds, and well beyond the level intended, presumably, with Article 41(1) of the UCITSD Implementing Directive. Under the current framework, UCITS using the VaR approach must also disclose the expected level of gross leverage, which is the sum of absolute values of long and short positions. They are not obliged, however, to calculate their global exposure under the commitment method.

It would appear desirable, in the interest of regulatory consistency and a holistic approach to supervision, to align the methodologies and reporting requirements for all investment funds. In particular:

- All UCITS, including funds that make extensive use of derivatives and currently report global exposure under the VaR approach (only), should be required to report and disclose global exposure, including information on leverage, also under the commitment method.
- UCITS that make extensive use of derivatives and currently report VaR should be required to calculate and report advanced market risk metrics, such as → Expected Shortfall (ES), which comprise information about “tail risk”.

Finance Watch recommends aligning methodologies and reporting requirements for all investment funds:

- All UCITS, including funds that make extensive use of derivatives and currently report global exposure under the VaR approach (only), should be required to report and disclose global exposure, including information on leverage, also under the commitment method.
- UCITS that make extensive use of derivatives and currently report VaR should be required to calculate and report advanced market risk metrics, such as Expected Shortfall (ES), which comprise information about “tail risk”.

118 The practical limitations of relying on normal (Gaussian) distributions and the risk of ignoring low-probability outcomes which may lead to extremely high losses. Several authors, in particular Taleb, warn of so-called “fat tailed” risk, i.e. distributions of risk with a higher-than normal probability of extreme outcomes, coupled with higher-than-normal losses; see Taleb, N.N., *The Black Swan: The Impact of the Highly Improbable*, 2nd ed., Random House (2007).

119 A “tail event” is a low-probability event that falls outside the confidence interval of the normal distribution (usually 95-99%) which is used to calculate the value at risk.

120 The Expected Shortfall (ES) method has been adopted by the Basel Committee, for instance, for the calculation of regulatory capital requirements for market risk under the Fundamental Review of the Trading Book (FRTB) as part of the Basel III framework; see Basel Committee on Banking Supervision (BCBS), *Explanatory Note on the Minimum Capital Requirements for Market Risk*, January 2019, pgs. 6-7.

Leverage limits

Leverage limits already exist, to varying degrees, in both the UCIS and AIFM Directives (Section I B. b. i.). They are, however, incomplete and

- UCITS which calculate and report their global exposure under the → commitment method are subject to a leverage limit of 100%. UCITS which report under the → Value at Risk method, by contrast, are not bound by a similar statutory limit. The provision which limits the absolute VaR to 20% of NAV – Section 3.6 of the CESR Guidelines – is not legally binding. In the absence of a more comprehensive review, potentially including the introduction of Expected Shortfall (ES), the current VaR threshold of 20% should, at least, be adopted in legally binding form, e.g. by amending Article 41(3) of the UCITSD Implementing Directive.
- In view of the emergence of highly leveraged UCITS¹²¹ it would also appear advisable to grant powers to competent authorities, analogous to Art. 25(3) of the AIFM Directive, to impose additional, potentially lower leverage limits upon UCITS if they are thought to pose a risk to financial stability.¹²²

Finance Watch recommends strengthening the rules on investment fund leverage, as follows in the AIFM and UCITS Directives:

- Adopting a legally binding VaR threshold of 20 % for all UCITS reporting under the VaR method
- Granting powers to competent authorities to lower leverage limits for UCITS if they are deemed to pose a risk to financial stability.

ii. Minimum haircuts on SFT

The FSB's recent warning about potential systemic vulnerabilities arising from the government bond-backed SFT markets has once again drawn the attention of supervisors and market participants to the risk of inadequate haircuts and rehypothecation.¹²³ The Financial Stability Board (FSB) has proposed a framework for numerical haircut floors for the NBFIs sector.¹²⁴ This framework, first published in 2014 and updated most recently in 2020, targets non-centrally cleared SFTs involving collateral other than government securities, where cash is provided to non-bank financial intermediation (NBFIs) entities. It mandates minimum haircut levels, which are determined by the type and maturity of the underlying collateral.¹²⁵ FSB member jurisdictions were expected to implement the framework by January 2023 for bank-to-NBFI transactions

¹²¹ European Securities and Markets Authority (ESMA), Risks in UCITS Using the Absolute Value-at-Risk Approach, ESMA50-524821-3660, 24 April 2025.

¹²² Mack, S., Out of the Shadow, pg. 10.

¹²³ Financial Stability Board (FSB), Vulnerabilities in Government Bond-Backed Repo Markets, 04 February 2026.

¹²⁴ Financial Stability Board (FSB), Regulatory Framework for Haircuts on Non-Centrally Cleared Securities Financing Transactions, 14 October 2014.

¹²⁵ Grill, M. / Hermes, F. / Wedow, M., The Impact of Minimum Haircuts on Non-Bank Leverage in the Euro Area, European Central Bank (ECB) Macroeprudential Bulletin No. 26, January 2025.

and by January 2025 for NBFI-to-NBFI transactions. As of today it has not been implemented in the EU.

In a recent study,¹²⁶ research staff at the ECB estimated that the introduction of the FSB framework of minimum haircuts would result in a reduction of the total volume of repo activity, and hence a reduction of leverage in the Eurozone financial system, by ca. EUR 117 bn (-13%) as of June 2023. The study indicates that larger, more highly leveraged market participants, i.e. those entities most likely to pose a systemic risk, would be particularly affected. These findings seem to support long-standing calls by the ESRB for the adoption of the FSB's haircut floors as a macroprudential instrument.¹²⁷

Finance Watch recommends that the haircut floor for securities financing transactions (SFTs) be implemented in the EU legislation, as proposed by the FSB.

c. Maturity / liquidity mismatches

i. Liquidity buffer requirements

The potential for liquidity/maturity mismatches to upset the working of the MMF sector, with systemic repercussions on a global scale, was demonstrated in the Global Financial Crisis of 2007-09 and again, fortunately with a less damaging outcome, in the period of market instability in March 2020 following the outbreak of the CoViD pandemic. In the latter case, large volumes of redemptions of VNAV and LVNAV MMF funds in the EU and the US, together with a drying up of the markets for short-term commercial paper (CP) and certificates of deposit (CDs), which these funds tend to be invested in, led to severe liquidity bottlenecks, which had to be eased by central bank intervention. An analysis by ESMA staff¹²⁸ describes the liquidity challenges that MMFs are exposed to as threefold: (i) MMFs have a large market footprint in the asset classes they invest in; (ii) those markets are not very liquid even in normal times; and (iii) MMFs have a high degree of portfolio overlap among themselves. These challenges affect all MMFs but the tension is highest for LVNAVs, which have to stay within their regulatory constraints especially during periods of stress. There is, in fact, a case to be made that the regulatory design of LVNAV MMFs is flawed and should be phased out altogether (Section II. B. c. ii.). In any event, **liquidity buffers** of VNAV (and LVNAV) MMFs in the EU still fall well short of other jurisdictions¹²⁹ and should be

126 Grill, M. / Hermes, F. / Wedow, M., The Impact of Minimum Haircuts on Non-Bank Leverage in the Euro Area, European Central Bank (ECB) Macroprudential Bulletin No. 26, January 2025.

127 European Systemic Risk Board (ESRB), ESRB Opinion to ESMA on Securities Financing Transactions and Leverage under Article 29 of the SFTR, October 2016, pgs. 17-18.

128 Bouveret, A. / Danielli, L., Vulnerabilities in Money Market Funds, European Securities and Markets Authority (ESMA) Trends Risks and Vulnerabilities No. 01, January 2021, pgs. 60-72.

129 European Systemic Risk Board (ESRB), Report on the Economic Rationale Supporting the ESRB Recommendation of 2 December 2021 on Money Market Funds and Assessment, January 2022; Mack, S., Out of the Shadow, pg. 6.

increased, as per the December 2021 recommendation of the European Systemic Risk Board (ESRB) (Recommendation B).¹³⁰

ii. LVNAV net asset value calculation and pricing

In its December 2021 recommendation the ESRB also suggests removing the ability for LVNAVs to calculate and report net asset value (NAV) at amortised cost, and to quote constant prices (Recommendation A). The ESRB notes that constant pricing suggests a degree of (cash deposit-like) stability in the value of fund units that may not be warranted by more volatile market pricing of the underlying assets. It also points out that the use of the amortised cost method, as long as the value of the funds assets is close to the market value, creates a cliff effect and provides a first-mover advantage to investors redeeming early, which can incentivise runs. The ESRB recommends to **remove the stable NAV feature of LVNAVs**¹³¹ and make their NAV fluctuate: this measure would remove the ability of LVNAV MMFs to offer “stable” NAVs by making the NAV fluctuate, similarly to the NAV of VNAV MMFs. Although the ESRB’s advice would effectively remove the defining characteristics of LVNAV MMFs, it stops short of suggesting that the category should be deleted altogether and leaving this decision to market participants. It would seem appropriate and consistent, however, and entirely in keeping with the current calls for simplification in financial regulation in the Draghi and Letta reports, to abandon what appears to be a flawed regulatory design and **merge LVNAV with VNAV MMFs.**

Finance Watch recommends merging LVNAV and VNAV categories of MMF by removing the permission for money market funds to quote stable NAV values and calculate their NAV at amortised cost.

iii. Mandatory minimum holdings of public debt

Finally, the ESRB’s December 2021 recommendation also suggests the introduction of a mandatory minimum holding of public debt within MMF portfolios that are not CNAV MMFs. Public debt is typically **more liquid** than private instruments, and would thus add a more stable source of liquidity to MMFs, and provide a degree of protection against temporary peaks in redemptions, especially in stressed market conditions.¹³²

Finance Watch recommends introducing a mandatory minimum holding of public debt within MMF portfolios that are not CNAV MMFs.

¹³⁰ European Systemic Risk Board (ESRB), Recommendation on Reform of Money Market Funds, ESRB/2021/09, 02 December 2021.

¹³¹ European Systemic Risk Board (ESRB), Report on the Economic Rationale Supporting the ESRB Recommendation of 2 December 2021 on Money Market Funds and Assessment, January 2022, pg. 16.

¹³² Grill, M. / Molestina Vivar, L. / Mücke, C. / O'Donnell, C. / O'Sullivan, S. / Wedow, M. / Weis, M. Weistroffer, C., Mind the Liquidity Gap: A Discussion of Money Market Fund Reform Proposals, European Central Bank (ECB) Macroprudential Bulletin No. 16, January 2022.

iv. Liquidity management tools

When considering the deployment of Liquidity Management Tools (LMTs) as a means to manage redemptions and conserve liquidity in open-ended funds in times of stressed market conditions, it is necessary to strike a fair balance between the financial stability and the interests of investors, especially retail investors. As discussed earlier (Section I. B. c. iii., iv.) liquidity management tools involve a transfer of risk to investors which must be carefully calibrated to avoid unintended side-effects. These include distorted incentives for fund managers to take excessive risks, including risks from liquidity mismatches, and/or even stronger incentives for investors to seek early redemptions in order to preempt the application of LMTs.

There is also evidence that fund managers are sometimes hesitant to apply LMTs, e.g. because they do not see an immediate need from the perspective of the individual fund – even though systemic risk may be building up around it, and may wish to avoid potential reputational damage for the fund, the fund manager, and the wider group.¹³³ Competent authorities, with guidance provided by the macroprudential authority, should be given a subsidiary competence to order the activation of LMTs.¹³⁴ At the EU level, the macroprudential and supervisory authorities should be authorised to issue advice to the national competent authority, similar to the power assigned to ESMA under Article 25(7) of the AIFM Directive, if member-state authorities fail to take action to address a substantial risk to financial stability.

Finance Watch recommends that national competent authorities be given the competence to activate liquidity management tools to address risks to financial stability. EU supervisory authorities should be empowered to issue advice to activate these tools if the national competent authorities fail to take action to address a substantial risk to financial stability.

¹³³ Financial Stability Board (FSB), Revised Policy Recommendations to Address Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds, pgs. 28 and 32.

¹³⁴ Mack, S., Out of the Shadow, pgs. 5 and 10.

Conclusion

This report has attempted to provide a high-level overview of the NBFIs sector and its credit intermediation activities, which have been known until not so long ago as *shadow banking*. The term is used here not to suggest that these activities are somehow shady and dubious, but to re-emphasise that a lack of transparency and adequate data still leaves regulators and supervisors “in the dark” on many aspects of this part of the financial system. Given the size and continued growth of the NBFIs sectors, efforts to address these data gaps and blind spots must be intensified.

For a long time, the ebb and flow between the banking and NBFIs sectors, and the transfer of risk from more strictly regulated banks towards the less regulated capital markets, was seen by many as a healthy process. Increasingly, it is becoming clear that the capital markets are not the vast, ever fluid ocean of the theorist’s imagination. The presence of large, extremely interconnected players with market power, such as major global investment banks and asset managers, creates choke points, or “**single points of failure**” which could jeopardise the stability of the system. Even though the term is no longer fashionable, these institutions are “systemically important” and deserve particular regulatory attention and supervision.

Equally worryingly, there is a strong, and **growing circularity** between banking and the NBFIs sector: risk that is ostensibly distributed away from banks’ balance sheets finds its way back onto them. A lack of transparency and disclosure prevents regulators and supervisors from performing their responsibilities effectively, which is a concern. A lack of visibility for market participants themselves, however, is even more of a concern, as it will invariably lead to large-scale misallocation of capital, mispricing of risk, and, ultimately, the build-up of systemic risk.

The banking and NBFIs sectors are **communicating vessels**, linked by shadow banking. Whether shadow banking is viewed as a natural, and legitimate extension of the core business of NBFIs, or as a manifestation of regulatory arbitrage is, arguably, a matter of perspective. What is paramount, however, in view of the continued build-up of debt in the financial system and the elevated economic uncertainty, is the need to strengthen the macroprudential policy framework to **contain excessive risk taking** in the NBFIs sector and protect the stability of the financial system.

Banks, too, should reconsider their position on **regulatory arbitrage**. This is not, in the words of ECB Chair Danielle Nouy, “a movie where a rogue hero happily flouts all the rules to save the world.” This is about the stability of the banking sector, the prosperity of the economy and the wealth of society as a whole.”¹³⁵

135 Nouy, D., *Gaming the Rules or Ruling the Game?*.

Glossary

- ABCP** **Asset-Backed Commercial Paper.** A form of commercial paper that is collateralised by other financial assets, e.g. loans or trade receivables. Commercial paper is a type of unsecured promissory note, usually issued by a financial institution (or an SIV connected to a financial institution) with a maturity of less than one year (usually one month).
- ABS** **Asset-Backed Security.** A security whose value is derived from, and collateralised (backed) by, a specified pool of underlying assets, e.g. repayments from mortgages, corporate and consumer loans, or credit cards. The process of pooling these 'assets' into ABS and selling them to investors on the capital markets is known as *securitisation*.
- AuM** **Assets under Management.** Art. 2 of Commission Delegated Regulation (EU) No 231/2013 (AIFMD Delegated Regulation): The aggregate value of the assets of all funds managed by a particular asset manager, calculated in accordance with the applicable valuation rules of the jurisdiction where these funds are domiciled, including all assets acquired through the use of leverage, borrowing of cash or securities, and/or derivatives.
- CCP** **Central Counterparty.** A financial institution that provides clearing and settlement services for trades in foreign exchange, securities, options, and derivative contracts and takes on counterparty credit risk between the parties. The main purpose of CCPs is to mitigate the risk of contagion in the event of the failure of a large market participant by distributing counterparty risk among a broader group of participants.
- CDO** **Collateralised Debt Obligation.** A category of → ABS where cash flows from specific tranches of other → ABS, typically → MBS, are pooled together, tranced again and sold to different groups of investors.
- CFD** **Contract For Difference.** An agreement between two parties, a buyer and a seller, that provides for the seller to pay to the buyer the difference between the value of an asset today and its value at a given future date. If the difference is negative, the buyer owes a payment to the seller. CFDs are financial derivatives that allow traders to take advantage of prices moving up (long positions) or prices moving down (short positions) on underlying financial instruments or commodities.

CLO	Collateralised Loan Obligation. A category of → ABS where payments from (syndicated) loans to large and medium-sized corporate borrowers are pooled together, tranching and sold to different groups of investors.
CLN	Credit-Linked Notes. A class of unsecured debt securities for which the return of principal is dependent on the performance of the collateral. CLNs represent a general obligation of the issuer where the investor has agreed to reduced payments from the issuer in the event that the borrowers on the underlying assets default.
CMBS	Commercial Mortgage-Backed Security. A category of → MBS comprising a pool of commercial mortgage loans.
Commitment method (exposure calculation)	The exposure of an → AIF calculated according to the commitment method (Art. 8 of Commission Delegated Regulation (EU) No 231/2013) includes the sum of the absolute values of all positions including positions that increase leverage according to the → gross method (including cash holdings), but applies netting and hedging arrangements.
Credit enhancement	A feature that is added to improve the credit profile of a structured financial transaction and hence its credit rating. Credit enhancements may be <i>internal</i> (e.g. by way of overcollateralisation, where the face value of the underlying portfolio of assets is larger than that of the security it backs), or <i>external</i> (e.g. by obtaining insurance or a letter of credit from a third-party, e.g. an insurer or another bank, to cover potential shortfalls from the portfolio).
ETF	Exchange-Traded Fund. Art. 4(1)(46) of the Markets in Financial Instruments Directive (MiFID II): A fund of which at least one unit or share class is traded throughout the day on at least one trading venue and with at least one market maker which takes action to ensure that the price of its units or shares on the trading venue does not vary significantly from its net asset value. ETFs come in two forms: (i) physical ETFs track an underlying index by physically holding an approximation of this index's portfolio composition; (ii) synthetic ETFs replicate the underlying index by using derivatives rather than holding an approximation of the underlying portfolio.
Expected Shortfall (exposure calculation)	A measure of the average potential loss a portfolio of assets, including derivatives, may be exposed to due to market risk in case of a low-probability "tail risk" event that lies outside the → VaR confidence interval (i.e. a worst-case scenario).

- Fire sale** The forced sale of an asset, typically when the seller is in financial distress. In a fire sale, assets are frequently sold below their intrinsic value so that the seller realises a loss on his investment. At scale, a fire sale has the potential to depress the market price of the asset, which may force other holders of that asset to write down its value on their books, potentially triggering further contagion.
- Forward contract** A bilateral contract, usually → over-the-counter (OTC), to buy or sell an asset at a specified future time at a price agreed on in the contract. The price agreed upon is called the delivery price, which is equal to the forward price at the time the contract is entered into.
- Futures contract** A standardised equivalent of the → forward contract, which may be traded on-exchange and centrally settled. Futures are usually based on commodities or financial instruments, such as fixed-income securities or stock market indices, and subject to margin requirements.
- Gross method (exposure calculation)** The exposure of an → AIF calculated according to the gross method (Art. 7 of Commission Delegated Regulation (EU) No 231/2013) includes the sum of the absolute values of all positions, including derivative instruments converted into the equivalent position in their underlying assets, the exposure resulting from the reinvestment of cash borrowings, positions within repurchase or reverse repurchase agreements, securities lending or borrowing or other arrangements but excluding any cash and cash equivalents which are held in highly liquid investments in the base currency of the → AIF.
- Haircut** The difference between the current market value of an asset and the value ascribed to that asset for purposes of calculating regulatory capital or as loan collateral. The amount of the haircut reflects the perceived risk of the asset falling in value in a fire sale or administrative liquidation. The larger the risk or volatility of the asset price, the larger the haircut.
- “Halfpipe” model** Colloquial name for the method introduced by the Basel Committee after the Global Financial Crisis to calculate banks’ regulatory capital requirements for securitisation exposures. The “halfpipe” model implements the principle of *non-neutrality*, by applying higher capital requirements for structured (tranche) securities, such as ABS, than for similar unstructured (“plain vanilla”) securities, such as covered bonds, to account for agency and model risks.

Hedging	A strategy designed to (i) protect the value of an asset or (ii) mitigate the risk of an exposure. Hedging involves either (i) purchasing an asset or assuming a liability which is negatively correlated with the original asset/exposure (“natural hedge”); or (ii) the use of derivatives, such as futures, options, or swaps (“synthetic hedge”). Hedging may be used to manage credit risk, market risk, exchange-rate or interest-rate risk, or volatility risk.
Herdning	The tendency of financial market participants to follow the actions of others, even when their own private information suggests a different course of action. Herdning may be based on rational as well as on irrational motivation but can be an important vector of (direct or indirect) contagion, and hence a source of systemic risk.
Key amplifiers	Activities and types of entities that particularly contribute to aggregate liquidity imbalances and the transmission and amplification of shocks due to their size, structural characteristics and behaviour in stress.
LBO	Leveraged Buy-Out. The acquisition of a company by a private equity fund using a high proportion of debt financing. Typically, assets and cash flow of the target company are the only collateral provided to lenders for their debt – there is usually no recourse to the fund.
Loan-originating AIF	Art. 4(1)(at) of the AIFM Directive (AIFMD II): An AIF whose investment strategy is mainly to originate loans; or (ii) whose originated loans have a notional value that represents at least 50% of its net asset value.
Margin	A payment exchanged between the parties of a derivative contract. There are two main types: (i) initial margin is the amount deposited by the buyer of a derivative contract to cover the counterparty against the risk of the buyer defaulting. In the case of options, the initial margin is also known as “option premium”; (ii) variation margin is a daily payment which reflects the profit or loss incurred by a party when a derivative is → <i>marked-to-market</i> .
Market-making	A commitment by a financial intermediary to offer trades in certain securities or derivatives on a continuous basis at pre-determined, publicly announced prices.
Mark to market	The accounting practice of updating the carrying value of an asset or liability on a regular, e.g. daily basis to reflect its market value at the present time.

Mark to model	The accounting practice of updating the carrying value of an asset or liability for which a market value is not readily available by using a valuation model to estimate its market value at the present time.
MBS	Mortgage-Backed Security. A category of → ABS comprising a pool of mortgage loans created by banks and other financial institutions.
NAV	Net Asset Value. The value of the assets of an → AIF or → UCITS less the value of its liabilities, including financial and synthetic leverage, and costs, such as management fees.
Originate-to-distribute	A business model which involves banks or credit funds extending loans to businesses or households with the intention to re-sell these loans immediately to third-party investors (e.g. by way of securitisation), instead of keeping them on their books to maturity.
Prime brokerage	Art. 4(1)(af) of the AIFM Directive (AIFMD II): A credit institution, a regulated investment firm or another entity subject to prudential regulation and ongoing supervision, offering services to professional investors primarily to finance or execute transactions in financial instruments as counterparty and which may also provide other services such as clearing and settlement of trades, custodial services, securities lending, customised technology and operational support facilities.
Redemption gate	A temporary measure that limits the redemption rights of investors, usually for a short period of time, in order to prevent a 'run on the fund' in stressed market conditions. Redemption gates include the temporary suspension of redemptions, changes to the advertised frequency of redemptions, and the introduction of mandatory notice periods.
Repo	Repurchase Agreement. An agreement between the holder of a financial asset (borrower) and a counterparty (lender) to sell the asset to the borrower at an agreed initial price and to repurchase the same asset at a future date at an agreed future price. The difference between the initial and the future price is retained as profit by the lender.
RMBS	Residential Mortgage-Backed Security. A category of → MBS comprising a pool of residential mortgage loans.

- RWA** **Risk-weighted assets.** A cornerstone of the Basel II and III regulatory frameworks, RWA are calculated by adjusting the nominal amount (*face value*) of an item on the bank's balance sheet (e.g. a loan to a customer or a financial instrument held by the bank) by a certain factor (*risk weight*) reflecting its riskiness. Risk weights are defined by the Basel III standards for different categories of risk, e.g. credit risk, market risk, counterparty risk, etc. RWA are used as the basis for determining a bank's capital requirements.
- Short-selling** The sale of a financial asset by a seller who does not currently own this asset for delivery at an agreed future date at an agreed future price. The seller may simultaneously enter into an agreement with another counterparty to purchase the asset at any point prior to the agreed date of delivery (*covered short*) or wait until the agreed date of delivery to purchase the asset at the then-prevailing market price (*naked short*).
- SIV** **Structured Investment Vehicle.** A type of special-purpose vehicle (→ SPV), usually established by a financial institution in a low-tax *off-shore* jurisdiction for the sole purpose of holding certain long-term financial assets, e.g. → ABS instruments. SIVs fund themselves by issuing short-term instruments (→ ABCP) and strive to realise a profit margin from the difference between long-term and short-term interest rates (*maturity transformation*).
- SPV** **Special Purpose Vehicle.** A legal entity, established for the sole purpose of carrying out financial transactions and/or holding financial assets, often in a low-tax 'off-shore' jurisdiction. The use of SPVs allow corporations and investors to deconsolidate certain assets and/or activities from their balance sheet and to shield profits from taxation.
- Swing pricing** The process of adjusting the price of an investment fund, especially in periods of market stress, by deducting from its NAV the costs associated with their trading activity and passing them on to redeeming or subscribing investors.
- Value at Risk (VaR) (exposure calculation)** A measure of the maximum potential loss a → UCITS may be exposed to due to market risk. More particularly, the VaR approach measures the maximum potential loss at a given confidence interval (probability level, usually 95-99%) over a specific time period under normal market conditions.

Annex I

Summary of policy recommendations

1 A **lack of transparency in the NBFi market** undermines the effectiveness of supervision, distorts markets, and increases moral hazard by transferring systemic risk to the general public. Critical information, e.g. about concentration risk or indirect leverage, remains fragmented and incomplete. The business interests of market participants must not take precedence over the public interest, and critical data must be made available to, and more effectively shared between competent authorities and regulators.

2 Interconnectedness, within the NBFi sector and with banking, has increased substantially and will only increase further with consolidation and the arrival of large new market entrants, such as digital platform operators. The current EU framework governing **financial conglomerates (FiCOD)** is outdated, too narrow in scope, and requires urgent action from the EU legislators. **System-wide stress testing** at the EU level is needed to help identify critical interconnections between NBFis and other sectors of the financial system.

3 There can be no doubt that major **NBFis are systemically important** and should be designated as such. Efforts by the Financial Stability Board (FSB) to design a dedicated prudential framework, which were effectively abandoned in 2014, should be renewed and updated.

4 Banks and NBFis are communicating vessels. Global investment banks, in particular, are the archetypal intermediaries between the two, and amplifiers of systemic risk. The adoption of **bank structural reform**, separating commercial banking from investment banking, would go a long way towards addressing regulatory arbitrage, reducing concentration risk, and preventing spillover.

5 The EU should complete the implementation of **international standards and recommendations**, especially on **MMF liquidity buffers** and **SFT haircuts**. EU legislators should reject the proposed revision of the prudential framework for securitisation, which marks an open break with the Basel III framework and could expose serious vulnerabilities in the EU financial system.

6 A fundamentally different, cross-sectoral and holistic approach is required for regulators and supervisors to address the communicating vessels which connect the NBFIs with banking and other critical parts of the financial system. This calls for more **centralised supervision** at EU level, with ESMA taking on more direct supervisory mandates over time.

7 A more robust and assertive supervisory stance is needed to distinguish “financial innovation” from regulatory arbitrage. In the spirit of simplification, which should benefit both professional market participants and users, overly risky or demonstrably **flawed products and practices should be removed** from the market, either by the legislators or through supervisory intervention.

8 Supervisors should be granted more extensive powers, and a more comprehensive set of **macroprudential tools**, such as leverage limits and liquidity management tools, to intervene, especially in the area of investment funds. When applying these tools, especially liquidity management tools, care must be taken to ensure that risk is not unfairly shifted back to investors.

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