



Finance Watch

Making finance serve society

Hidden risks in Non-Bank Financial Intermediation (NBFI)

Mapping vulnerabilities from shadow banking

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
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
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
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
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
OFI	Other Financial Intermediaries
OIFs	Other Investment Funds
OTC	Over The Counter
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 The term non-bank financial intermediation (NBFi) obscures the fact that banks remain central to the origination and intermediation of credit in most NBFi activities.

2 The growth of NBFi - also known as shadow banking - is primarily a result of banks' strategies to optimise balance sheets and reduce regulatory capital requirements, in particular in response to the post-crisis reforms. In most cases, banks continue to play a central role in the origination and/or intermediation of credit.

3 Information on NBFis remains incomplete, which represents an essential obstacle to effective oversight and regulation. A lack of comprehensive, cross-sectoral data and the complexity of shadow banking itself raise the spectre of new, unidentified concentrations of systemic risk.

4 The key concerns around NBFis include:

- high degree of leverage, including *leverage on leverage*;
- liquidity risk;
- strong interconnectedness with the banking sector;
- circular exposures, where risks that have been laid off by banks to NBFis are ultimately channeled back, and borne by, the banking sector.

5 Cross-sectoral macroprudential policies need to be designed to address the systemic risk identified above.

Executive summary

This report provides a general introduction to non-bank financial intermediation and outlines some of the concepts, structures and instruments that characterise the NBFI sector. It concludes with a brief summary of the current state of play and a potential outlook.

The term *NBFI* – non-bank financial intermediation – is a misnomer. In most, if not all, of the activities outlined in this report, banks play a central role in the origination and/or intermediation of credit.

For the same reason, it is incorrect and potentially misleading to depict NBFI – *shadow banking* – as a competitive challenge from non-banks to banks. On the contrary, the growth is primarily a result of banks' strategies to optimise balance sheets and reduce regulatory capital requirements, facilitated by regulatory arbitrage.

In many instances, NBFI structures aim at distributing risk from the banking sector to other market participants in less regulated, and often less transparent segments of the financial market. Comments from regulators and supervisors point towards a lack of comprehensive, cross-sectoral data, raising the spectre of new, unidentified concentrations of systemic risk.

While systemic risk in the banking sector has been recognised as a real risk to financial stability, at least since the Global Financial Crisis of 2007-09, the scale and potential impact of systemic risk in the non-bank sector have not. Despite mounting evidence to the contrary, there is still a strong doctrinary belief that nearly every financial risk can be *diluted* and *absorbed* by the seemingly boundless depth, and collective analytical capacity, of global capital markets.

This doctrine appears naive and increasingly out of step with reality. The complexity of NBFI structures and markets is such that only sophisticated, highly specialised players are capable of operating successfully in them for any length of time. That, in turn, implies that each one of these niche markets is likely to end up being populated by only a small group of participants, raising all of the typical regulatory concerns about transparency, concentration risk, lack of competitive pricing, collusion, and other kinds of market failures and misconduct.

Moreover, NBFI structures often involve a degree of circularity, with some of the risk that has been *laid off*, ostensibly, to other market participants being ultimately channelled back to, and borne by, the banking sector. It appears that the risk of such *circular exposures* is not yet fully understood, let alone quantified.

The complexity of *shadow banking* itself is an issue, as it gives rise to regulatory and supervisory gaps. If credit origination and intermediation is deliberately structured around the prudential framework for banks, regulators and supervisors need to be provided with the tools and data to capture and manage these risks in a similar

manner, i.e. holistically and across sectors. Macroprudential policies and regulatory frameworks cannot be restricted by sectoral boundaries if the systemic risk they are meant to address is permitted to flow across those boundaries without hindrance.

Finance Watch will endeavour to explore the sources and potential manifestations of systemic risk in the NBFI sector in another publication in due course. At this stage, however, it is important to note that banking and NBFI are not so much fierce opponents in a competitive market but rather *communicating vessels* that frequently cooperate to arbitrage regulatory requirements, and maximise profitability for both sides.

I. Introduction: Look Daddy, no teeth!

It is probably among the oldest of parenting tropes: a small kid on his first bicycle, carried away by the thrill of speed, confidence buoyed, takes his hands off the handlebar, jubilant: “Look Daddy, no hands!” Then the wobble and the inevitable crash, followed first by stunned silence and then loud wailing. Nothing to do with high finance, you say? Well then, think again.

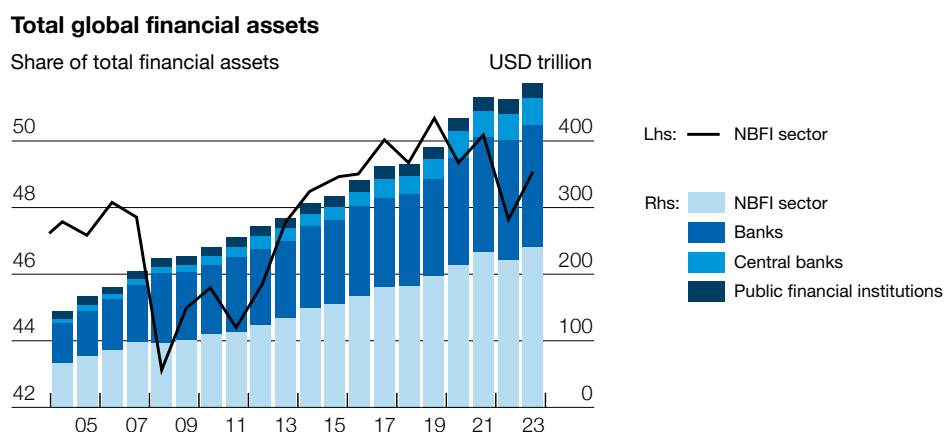
For years now, experts, regulators and policymakers have been watching the seemingly unstoppable rise of non-bank financial intermediation (NBFi), accompanied by an unprecedented build-up of debt in the global financial sector. There has been no shortage of well-meaning exhortations and dire warnings. But the jubilant kid would not be stopped. Some may be tempted to conclude, with grim sarcasm, that the parallels don’t end here. For small kids on wobbly bicycles and global financial regulators even the sorry conclusion appears to be the same: “Look Daddy, no teeth!”

Eighteen years after the Global Financial Crisis, the familiar journey from public outrage and cries of “Never Again” has, once again, returned to the comforting hum of *business as usual*. The opportunity for a fundamental realignment of the global financial sector seems to have come and gone. Whatever reforms have been achieved, mostly in the immediate aftermath when memories were still fresh and political momentum strong, are likely to turn out insufficient. Even worse, the *regulatory pendulum* is swinging back with a vengeance: the post-crisis prudential framework for banking (Basel III) is being rolled back on both sides of the Atlantic at alarming speed. Warnings by international organisations, central bankers, supervisors and other experts go largely unheeded.

The NBFi sector was critically implicated in the Global Financial Crisis of 2007-09 as well as in several serious *near misses* before and after, such as the demise of Long-Term Capital Management (LTCM) in 1997, the upheaval in global financial markets following the outbreak of the Covid pandemic in March 2020, the collapse of Archegos Capital Management in 2021, or former UK Prime Minister Liz Truss’ fatal run-in with Liability-Driven Investment (LDI) funds in 2022. Subdued only for a short while in the wake of the crisis, the NBFi sector has rebounded since and continues to grow in leaps and bounds.

Between 2023 and 2024 alone, the global NBFi sector grew by 8.5%, from ca. USD 220 trn to ca. USD 240 trn. This is more than **twice the rate of growth of the traditional banking sector** (3.3% p.a.). By the end of 2024, NBFis accounted for nearly **half of total global financial assets** (49%).¹

¹ Financial Stability Board (FSB), Global Monitoring Report on Non-Bank Financial Intermediation 2024, 16 December 2024, pg. 5.

Figure 1: Growth of the NBFI sector

Composition of the global system					
	Total global financial assets	Central banks	Banks	PFIs	NBFI sector
Size at end-2023 (USD trillion)	486.4	37.5	188.7	21.4	238.8
Share of total global financial assets (%)	100.0	7.7	38.8	4.4	49.1
Growth in 2023 (year-over-year, %)	5.2	-3.4	3.3	3.5	8.5
Growth 2017-22 (annualised growth, %)	5.3	7.8	6.2	5.2	4.2

Source: Financial Stability Board (2024)

In its April 2025 Global Financial Stability Report,² the IMF points out “the growing role of nonbank financial intermediation (NBFI) and the increased exposure of banks to NBFIs. The linkages between banks and nonbanks have been growing, increasing the NBFI’s influence on systemwide financial stability.” The ongoing increase in leverage and interconnectedness in the financial system, “especially among certain NBFIs receiving strong investment flows in recent years”, is highlighted as a potential risk to financial stability. In light of these considerations, **improving the regulation of NBFIs “should remain a priority”**.

The Financial Stability Board (FSB)’s July 2024 progress report on enhancing the resilience of NBFI³ emphasises, in particular, the susceptibility of the NBFI sector to liquidity shocks in times of stress. It notes that the availability of liquidity, and its effective intermediation, are critical for the functioning and resilience of the NBFI ecosystem and goes on to state **three primary policy objectives**: (i) to reduce sudden spikes in the demand for liquidity; (ii) to enhance the resilience of liquidity supply in times of stress; and (iii) improve risk monitoring and the preparedness of authorities and market participants. The report also identifies certain activities and types of entities (key

² International Monetary Fund (IMF), Global Financial Stability Report: Enhancing Resilience Among Uncertainty, April 2025, pgs. ix and xv.

³ Financial Stability Board (FSB), Enhancing the Resilience of Non-Bank Financial Intermediation: Progress Report, 22 July 2024, pg. 5.

amplifiers) “which may contribute particularly to aggregate liquidity imbalances”.

This report aims at providing a general introduction to non-bank financial intermediation (Chapter I) and outlines some of the concepts, structures and instruments that characterise the NBFI sector (Chapter II). It concludes with a brief summary of the current state of play and a potential outlook (Chapter III).

II. The non-bank financial intermediation (NBFI) landscape

A. *Here be dragons: medieval maps and global finance*

a. From *shadow banking* to non-bank financial intermediation

This is not a report about *shadow banking*. Or is it? Before going further in this review of the non-bank financial intermediation (NBFI) sector it is worth addressing the first of several elephants in the room. Why was NBFI known until fairly recently as shadow banking? And why has it been re-branded?

When the Financial Stability Board (FSB) decided to rename its regular Shadow Banking Monitor in 2018 it was, ostensibly, to dispel the lingering whiff of something illicit, a shady twin lurking in the shadow of proper, traditional banking. For some, this **tarnished reputation** may be well deserved by virtue of the role the NBFI sector played in the Global Financial Crisis of 2007-09. Others will contend that most of the activities that form part of this vast, and very diverse sector are legitimate, and indeed useful building blocks of the financial system. There is another reading of the phrase shadow banking, however, which suggests that this is an area of the financial industry which **lacks transparency**, especially for those on the outside looking in. It is, literally, *in the shade*, meaning away from the public gaze, difficult to navigate, and perhaps thriving when not exposed to the full glare of public and regulatory scrutiny.

Well into the early modern age, even the most advanced maps and terrestrial globes featured large swathes of blank, uncharted territory, sometimes marked with a foreboding Latin inscription: ***Hic sunt dracones*** (*Here be dragons*) (Figure 2). Quaint as it may sound today, this little sentence aptly conveys the palpable discomfort of contemporary cartographers when confronted with the obvious boundaries of their knowledge. Reliable information was hard to come by, and when it did those who had it were not always motivated to share it. This was the Age of Discovery after all, and vast fortunes were there to be made for those who knew their way around these mysterious, unmapped places. Small wonder then that they had little interest, perhaps, in filling in the blanks. Like Fafnir's hoard, their fortunes were, literally, guarded by dragons.

Figure 2: The Hunt–Lenox globe (ca. 1508)

Source: University of Rochester/New York Public Library

This historical imagery may seem far-fetched, admittedly, in the context of modern financial markets. Then again, nearly every recent report by regulators and supervisors dealing with NBFI seems to start with the acknowledgment that information about this sector remains incomplete, and represents a formidable obstacle to effective regulation. In its April 2025 Financial Stability Report,⁴ the IMF notes that “data gaps preclude a complete and timely assessment of vulnerabilities. The **data gaps are challenging sound decision making** for private sector participants and for policy makers. To harness the benefits from the growth of NBFIs, it is paramount to strengthen data availability for risk monitoring and assessment.” In some corners of the modern world ancient dragons still seem to be on the prowl.

b. Defining non-bank financial intermediation (NBFI)

The NBFI landscape is complex and heterogeneous, which adds to the challenge of collecting and collating reliable data. To begin with, there seems to be **no widely accepted common definition** of the term. According to the **Financial Stability Board (FSB)**, the term *non-bank financial intermediaries* (NBFI) refers to “all non-bank financial entities, composed of all financial institutions that are not central banks, banks, or public financial institutions”. In this terminology, Other Financial Intermediaries (OFIs) are a subset of the NBFI sector, composed of “all financial institutions that are not central banks, banks, public financial institutions, insurance corporations (ICs), pension funds (PFs), or financial auxiliaries.” They include “money market funds (MMFs), hedge funds (HFs), other investment funds (OIFs), captive financial institutions and money lenders, central counterparties (CCPs), broker-dealers (BDs), finance companies (FinCos), trust companies (TCs), and structured finance vehicles (SFVs).” Finally, the **narrow measure of NBFI**, in this nomenclature, is composed of “NBFI entities that authorities have assessed as being involved in credit intermediation activities that may pose bank-like financial stability risks (i.e.

⁴ IMF, Global Financial Stability Report (April 2025), pg. x.

credit intermediation that involves maturity/liquidity transformation, leverage or imperfect credit risk transfer) and/or regulatory arbitrage.”⁵

The **International Monetary Fund (IMF)**, uses the term *nonbank financial institutions* (also NBFI) to cover “a broad array of intermediation activity, including insurance companies, pension funds, investment funds (mutual funds, exchange-traded funds, hedge funds, private equity, and private credit), and finance companies.”⁶

According to the terminology of the **European Central Bank (ECB)**, in turn, *non-bank financial intermediaries* (again NBFI) comprise insurance companies and pension funds (ICPFs), investment funds (IFs), and Other Financial Intermediaries (OFIs). The latter include, amongst others, “security and derivative dealers, financial vehicle corporations (FVCs) engaged in securitisation transactions, financial corporations engaged in lending, specialised financial corporations, holding companies and financing conduits.”⁷

This comparison illustrates how regulators, policymakers, and academia are still grappling with a common understanding of what precisely the term *NBFI* is meant to cover. Even the three definitions quoted here throw up noteworthy and **substantial differences**. Insurers, pension funds, and private equity funds, for instance, are included in some definitions but excluded from others. Similarly, central counterparties (CCPs) are included as financial intermediaries in the FSB’s definition but may be considered as operators of financial market infrastructure by others. It is well beyond the scope of this report to attempt to reconcile these different terminologies, but they clearly have a bearing on the way the sector is understood, measured, analysed and, ultimately, regulated. These differences also manifest themselves in the data collected by different institutions, and hence in the analysis informed by this data.

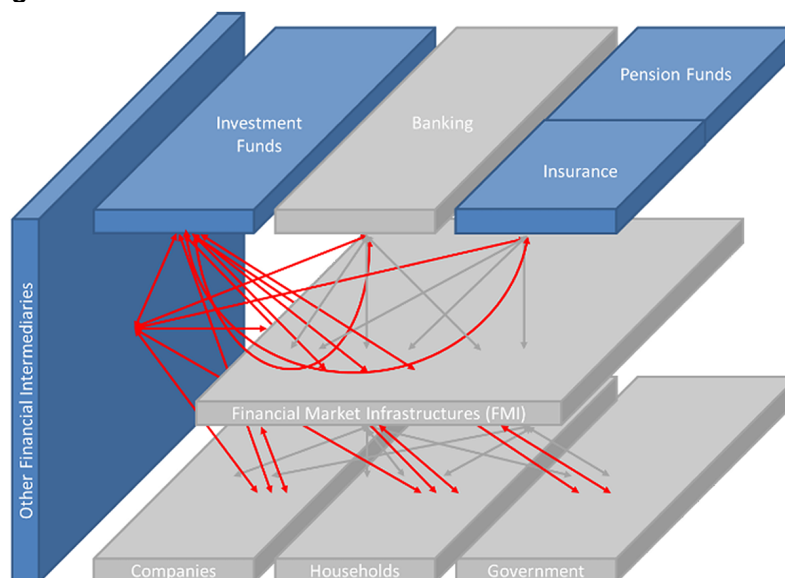
⁵ FSB, Global NBFI Monitoring Report 2024, pg. 3.

⁶ IMF, Global Financial Stability Report (April 2025), pg. ix.

⁷ European Central Bank (ECB), Non-Bank Financial Intermediation in the Euro Area: Implications for Monetary Policy Transmission and Key Vulnerabilities, ECB Occasional Paper Series No 270, December 2021, pg. 8.

B. Mapping the NBFI landscape

Figure 3: NBFI – An overview



a. Market participants

This report primarily draws on the definitions by the IMF and the ECB to sub-divide the NBFI landscape into three segments (Figure 3). The categories of financial market participants are aligned with the relevant terminology used by the EU.

i. Insurance companies and pension funds (ICPFs)

Insurance companies and **pension funds** are, generally speaking, long-term institutional investors who manage large, diversified portfolios of assets on behalf of policyholders and pension savers. Assets are broadly matched to their liabilities, i.e. expected insurance claims and pension payments, which are estimated by way of actuarial mathematics based on long-term statistical observations. As of Q3 2024, total assets of EU insurance groups were ca. [EUR 8.5 trn], an increase of 8% year on year.

ICPFs participate in the NBFI market in a variety of ways: (i) as providers of collateral – through their large portfolios of long-term financial assets; (ii) as investors in certain structured instruments, such as asset backed securities (→ ABS); and (iii) as counterparties in derivative transactions – either for hedging their own positions or for selling protection to other financial entities, including banks. In some lines of business, such as life assurance and defined-benefit pensions schemes, ICPFs take on obligations to deliver guaranteed returns to their investors, which may expose them to market and interest rate risk, especially in low-interest environments and at times of high market volatility.

Life insurers, in particular, have in recent years increased their exposures to riskier, less liquid asset classes in order to counter the impact of the low-interest rate environment on their portfolio returns. Some of them have also entered into complex arrangements with reinsurers to redistribute the insurance risk attached to their portfolios, and reduce regulatory capital requirements and technical provisions. In both instances, Private Equity funds play a major role by (i) collecting investable funds from insurance companies – as well as pension funds – looking for attractive investment returns, and (ii) acquiring insurance portfolios, e.g. through investments in life insurance or reinsurance companies.⁸

Reinsurance companies traditionally provide coverage to primary insurers for particular categories of risk, such as natural catastrophes. They also offer risk-sharing reinsurance arrangements that allow primary insurers to redistribute some of the insurance risk in their portfolio. The effect is for the primary (*ceding*) insurance company to exchange the original insurance risk for credit risk of the reinsurer. Since the Global Financial Crisis, reinsurers have expanded into other areas of business. In the US, global reinsurers, including EU-domiciled groups, have been involved since 2013 in Credit Risk Transfer (CRT) programmes where they underwrite residential mortgage risk for the U.S. mortgage finance agencies, Fannie Mae and Freddie Mac (Section 2.3.1.c).⁹

ii. Investment Funds (IFs)

The category of **Investment Funds (IFs)** comprises a wide array of diverse structures and investment strategies often with very different characteristics. They may be subdivided further, along different axes, e.g.:

- by structure, distribution model, and/or investor base (open-ended / closed-ended, public / private funds);
- by asset class, investment strategy, and/or risk profile (money market funds (MMFs), hedge funds, other investment funds).

In the EU, open-ended investment funds, including Exchange-Traded Funds (→ ETFs), are typically structured as Undertakings for Collective Investments in Securities (→ UCITS) while Alternative Investment Funds (→ AIFs) are usually, but not always, closed-ended funds.

Undertakings for Collective Investment in Securities (UCITS) are established in accordance with the UCITS Directive.¹⁰ As of year-end 2024, the total Net Asset Value (→ NAV) of UCITS domiciled in the EU was ca. 12.6 trn.¹¹ They invest primarily, but

8 Garavito, F., et al., Shifting Landscapes: Life Insurance and Financial Stability, Bank for International Settlements (BIS) Quarterly Review, September 2024.

9 Bell, I. / Bennett, M. / Duponchee, G. / Joulia-Paris, T. / Ormezzano, V., The Increasing and Stabilising Role of (Re) Insurance Companies in Providing Credit Protection: An Analysis Across Key Jurisdictions, International Association of Credit Portfolio Managers (IACPM), 02 May 2025.

10 Directive 2009/65/EC of 13 July 2009 on the Coordination of Laws, Regulations and Administrative Provisions relating to Undertakings for Collective Investment in Transferable Securities (UCITS) (recast) (UCITS Directive), OJ L 302, 17 November 2009, pgs. 32–96. The UCITS Directive provides a legal framework for open-ended funds that are offered to the public in the EU.

11 European Fund and Asset Management Association (EFAMA).

not exclusively, in listed equity and fixed-income securities¹² and offer investors the option of redeeming their units periodically, often on a daily basis. As a result, UCITS are exposed to often significant maturity mismatches. Depending on the type of fund, its structure and investment strategy, some of these assets may be difficult to sell to meet investors' demand for cash in the event of unexpectedly large redemptions. Assets may not be traded on regulated public markets, or may not be traded regularly at all. As with MMFs, pressure on a UCITS fund to sell less liquid assets at speed to meet redemptions has the potential to trigger forced asset sales (→ fire sales). Some UCITS invest in structured financial instruments issued by banks and NBFIs, such as → ABS, and/or make use of derivative instruments to hedge positions and/or smooth returns. UCITS are subject to a leverage limit and may not take on leverage of more than 100% of their NAV.

Whereas UCITS in the EU are issued in certain formats predetermined by member-state legislation, **Alternative Investment Funds (AIFs)** enjoy more latitude, both in terms of structure and investment strategy.¹³ In particular, unlike UCITS, most AIFs¹⁴ have no statutory limits on leverage¹⁵ and, unlike MMFs, do not have to comply with minimum liquidity requirements. They may be structured, with minimal statutory constraints, to meet the risk appetite and return expectations of specific investors. As of year-end 2024, the total NAV of AIFs domiciled in the EU was ca. EUR 7.2 trn. AIFs are usually not publicly traded, and sold to institutional investors only. They invest in a wide range of assets, often illiquid, and sometimes employ significant leverage to maximise returns (Section 2.3.4). Private Equity funds, Private Debt funds (known in the EU as → loan-originating AIFs), and Real Estate Investment Trusts (→ REITs) are some of the main sub-categories of AIFs.

UCITS are among the most active participants in the NBFi market acting as (i) investors in, and sometimes originators of structured transactions, such as securitisations (Section 2.3.1); (ii) short-term borrowers in Securities Financing Transactions (Section 2.3.2); and (iii) users of derivative instruments (Section 2.3.3) for a wide range of purposes, including hedging, optimising returns on underlying assets, and even the construction of individual positions or entire portfolios.

12 For an overview of UCITS exposures to certain asset classes, such as structured/leveraged loans, catastrophe bonds, emission allowances, commodities, crypto-assets, and unlisted equities, see European Securities and Markets Authority (ESMA), Final Report: Technical Advice to the European Commission on the Review of the UCITS Eligible Assets Directive, ESMA34-2087785638-1548, 26 June 2025. The range of asset classes that UCITS may invest in is delineated in Commission Directive 2007/16/EC of 19 March 2007 (UCITS Eligible Assets Directive, UCITS EAD), OJ L 79, 20 March 2007, pgs. 11-19.

13 Directive 2011/61/EU of 08 June 2011 on Alternative Investment Fund Managers (AIFM Directive), OJ L 174, 01 July 2011, pgs. 1-73. The AIFM Directive sets out the legal conditions for managing and marketing alternative investment funds in the EU.

14 New statutory leverage limits were introduced for on loan-originating" AIFs (only) with the revised AIFM Directive (AIFMD II), which entered into force in April 2024 and must be implemented into member-state national law by April 2026. Leverage (calculated under the commitment method) may not exceed 175% of NAV for open-ended funds or 300% of NAV for closed-ended AIFs.

15 Art. 25 of the AIFM Directive authorises national supervisors to "impose leverage limits on AIFs *"to limit the extent to which the use of leverage contributes to the build up of systemic risk in the financial system or risks of disorderly markets."* This authorisation has been invoked on several occasions in Ireland and Luxembourg, most recently in April 2024.

Money Market Funds (MMFs) are investment funds that invest in highly liquid, short-term financial assets. They are a key source of private-sector short-term funding and liquidity for governments, corporate borrowers, and the banking sector. MMFs are active in virtually all areas of the NBFi market including (i) Securities Financing Transactions (SFT) – as providers of collateral for short-term borrowing, e.g. by banks (Section 2.3.2); (ii) Securitisation – as investors in asset-backed securities (→ ABS), commercial paper (→ ABCP) and credit-linked notes (→ CLOs) (Section 2.3.1); and (iii) as counterparties in interest rate and currency derivative transactions – to hedge positions and enhance returns (Section 2.3.3). Non-financial corporations also invest in MMFs, often MMFs for internal cash management purposes.

MMFs in the EU may be structured as open-ended (→ UCITS) or closed ended (→ AIFs) funds – the majority of European MMFs are UCITS.¹⁶ The MMF Regulation¹⁷ defines three categories of MMFs:

- Public Debt Constant-NAV (CNAV) MMFs are obliged to invest 99.5% of their holdings in government assets; they are valued at amortised cost and traded at a constant price.
- Variable-NAV (VNAV) MMFs are subject to looser liquidity rules than Public Debt CNAV and LVNAV funds and may invest in assets of longer maturities; they are valued and traded at market prices based on their NAV.
- Low-Volatility (LVNAV) MMFs combine features of both CNAV and VNAV funds; like Public Debt CNAV funds their assets are valued at amortised cost and traded at constant prices as long as the difference between the fund's NAV at market prices and amortised cost does not exceed 0.2% – in which case it converts into a VNAV fund traded at variable (mark-to-market) prices.

Most MMFs offer investors daily redemption of their units, which implies a degree of maturity transformation since their assets tend to have longer maturities (normally up to a year, sometimes longer for VNAV) so that unexpectedly large redemptions have the potential to cause liquidity bottlenecks, which could, in turn, trigger forced asset sales (→ fire sales).

Other investment funds (OIFs), by far the most diverse category, comprise open-ended and closed-ended funds. In the EU, open-ended funds, including most Exchange-Traded Funds (→ ETFs) are typically structured as Undertakings for Collective Investment in Securities (→ UCITS), while most closed-ended funds are Alternative Investment Funds (→ AIFs). Large, internationally active asset management groups typically manage both UCITS and AIFs.

¹⁶ European Securities and Markets Authority (ESMA), Final Report: Technical Advice to the European Commission on the Review of the UCITS Eligible Assets Directive, ESMA34-2087785638-1548, 26 June 2025.

¹⁷ Regulation (EU) 2017/1131 of 14 June 2017 on Money Market Funds, OJ L 169, 30 June 2017, pg. 8 (MMF Regulation). The MMF Regulation contains the regulatory framework for money market funds established, managed or marketed in the EU.

Hedge funds (HFs) are a sub-set of AIFs which, according to the ECB's definition, "apply relatively unconstrained investment strategies to achieve positive absolute returns" and "whose managers, in addition to management fees, are remunerated in relation to the fund's performance".¹⁸ They are often characterised by multi-sector investment strategies across a wide range of markets, high leverage, and the use of short-selling and derivatives, among others.¹⁹ Large hedge funds often spread their borrowing across several → prime brokers, which helps diversify their funding sources but can also create hidden leverage in the financial system.²⁰

Sovereign wealth funds (SWF) and **family offices** are two categories of funds which are characterised primarily by their ownership rather than by any particular structure or investment strategy. Sovereign wealth funds are operated by, or on behalf of governments to reinvest public funds, e.g. income from mineral wealth or the exploration and production of fossil fuel reserves, usually with a long time horizon.

iii. Other Financial Intermediaries (OFIs)

Other Financial Intermediaries (OFIs) are another *catch-all* category that must be broken down further for a sufficiently granular analysis:

Security and derivative dealers (also known as *broker-dealers*) trade in financial instruments either on behalf of their clients (**agency business**) or on their own account (**principal trading**), and provide a wide range of ancillary services, such as → market-making and → prime brokerage. The boundary between their activities as agents and principals is often difficult to draw as they often engage in the same markets in different capacities. Potential conflicts of interest arising from these multiple roles are addressed by insider trading and market abuse rules.

Some of the largest broker-dealers are subsidiaries of other financial groups, especially investment banks and asset managers, but there is also a vast universe of independent firms of all sizes, often with highly specialised skills and business models. Securities and derivative dealers play a central role and frequently act as the linchpin at the boundary between the banking and NBFi sectors. Those which form part of the investment banking arm of global banking groups regularly handle funding transactions for their own group and other banks on the public and private capital markets, such as equity and debt placements, and execute trades in securities and derivatives for the bank and its clients. They also prepare and execute transactions on behalf of other departments of the bank, e.g. to hedge assets and liabilities, and/or execute transactions to regulatory capital relief, such as securitisations (Section 2.3.1). Prime brokerage services, typically offered by large global investment banks, enmesh these

18 European Central Bank (ECB), Lists of Financial Institutions: Investment Funds (IFs). Definitions of Attributes on the IFs List, 13 March 2023.

19 European Central Bank (ECB), Hedge Funds: Developments and Policy Implications, ECB Monthly Bulletin, January 2006, pg. 64.

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

banks and their hedge fund clients in complex, multi-level relationships spanning lending, brokerage, custody services, and securities financing. Securities and derivative dealers are among the most active and critical participants in the NBFI sphere, and engage in virtually all types of transactions and markets.

Financial vehicle corporations (FVCs), also known by an *alphabet soup* of other terms and acronyms, such as Special Purpose Vehicles (→ SPVs), Special Investment Vehicles (→ SIVs) and financing conduits, are legal entities that are created specifically for the purpose of structured transactions, such as securitisation (Section 2.3.1) and private equity or debt investment (Section 2.3.4).

Finally, the OFI sector comprises **other financial corporations** engaged in lending, specialised financial corporations, and holding companies. These entities are often involved in specific types of lending, such as automobile or equipment leasing, or act as service companies managing the funding and liquidity requirements of large (financial and non-financial) corporate groups.

b. Markets and infrastructures

Section 2.1 shows that the NBFI universe comprises a wide array of actors whose principal business activities are not at all focused on banking. They become part of *shadow banking* only when they get involved, in the words of the FSB, in “credit intermediation activities that may pose bank-like financial stability risks (i.e. credit intermediation that involves maturity/liquidity transformation, leverage or imperfect credit risk transfer) and/or regulatory arbitrage.” Through shadow banking, NBFIs replicate the traditional credit intermediation mechanisms of the banking sector via the capital markets.

i. Credit intermediation

In order to distinguish credit intermediation activities that may pose “bank-like financial stability risks” from other NBFI activities, the FSB²¹ and the EBA²² have identified four key features:

- Maturity transformation (borrowing short and lending/investing on longer timescales)
- Liquidity transformation (using cash-like liabilities to finance less liquid assets)
- Leverage
- Credit risk transfer (transferring credit default risk to another party for a fee)

The FSB highlights the role of regulatory arbitrage as a key driver of credit intermediation via the *shadow banking* sector (Section 3.2). It notes that NBFIs “perform credit intermediation similar to that provided by banks ... but are not subject to the same regulatory and supervisory constraints.” They may therefore be able to operate without internalising the true cost of risks while gaining a competitive advantage relative to

21 Financial Stability Board (FSB), Shadow Banking: Strengthening Oversight and Regulation. Recommendations of the Financial Stability Board, 27 October 2011, pg. 11.

22 European Banking Authority (EBA), Report to the European Commission on the Perimeter of Credit Institutions Established in the Member States, 27 November 2014, pg. 2.

banks, which are subject to prudential regulation that aims to internalise these risks. The FSB goes on to warn that this imbalance is likely to “create opportunities for arbitrage that undermine bank regulation and lead to a build-up of risks in the financial system. Moreover, banks themselves may use shadow banking entities to circumvent their prudential regulatory requirements and take on additional risks.”²³

There are, in general terms, two principal markets where credit intermediation takes place, the wholesale funding market (Section 2.2.2) and the risk transfer market (Section 2.2.3). These are not formal markets, of course, but extensive, and often loose networks of bilateral and multilateral trading relationships which connect the banking sector with NBFIs on multiple levels. Because of the scale and opacity of these connections, which came to light, and proved a major obstacle to authorities’ crisis management and containment efforts during the Global Financial Crisis of 2007-09, policymakers and regulators undertook a number of initiatives to move as many of these activities as possible from the bilateral, over-the-counter (OTC) market onto regulated, and supervised, multilateral venues. So far, these efforts have been only partially successful (Sections 2.3.2 and 2.3.3).

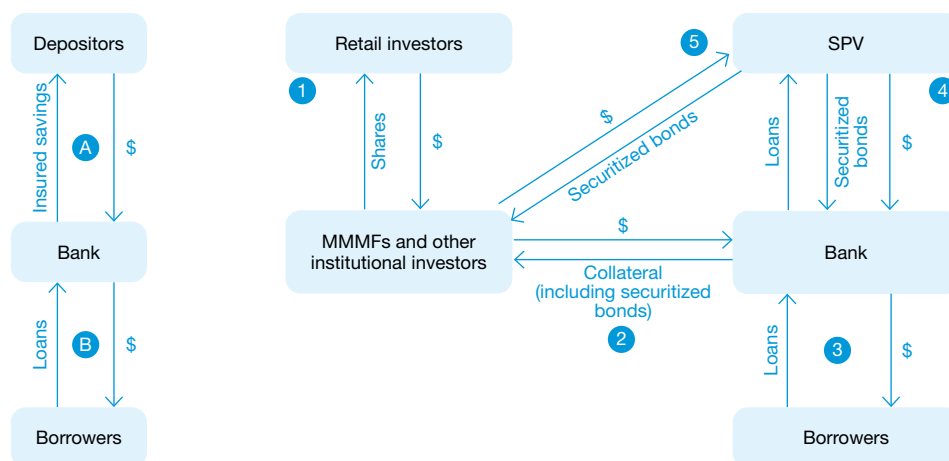
ii. Wholesale funding markets

Gorton and Metrick²⁴ chart the rise of *shadow banking* since the 1980s and illustrate how the wholesale funding model came to rival the traditional reliance of banks on deposit funding. They point out the regulatory and legal changes that favoured the ascendancy of what they consider “the three main institutions of shadow banking”:

- Money Market Funds (MMFs; Section 2.1.2) to capture retail deposits from traditional banks
- Securitisation (Section 2.3.1) to move assets of traditional banks off their balance sheets
- Repurchase agreements (repos; Section 2.3.2) to facilitate the use of securitised bonds in financial transactions as a cash-like form of money

23 Financial Stability Board (FSB), Shadow Banking: Strengthening Oversight and Regulation. Recommendations of the Financial Stability Board, 27 October 2011, pg. 12.

24 Gorton, G. / Metrick, A., Regulating the Shadow Banking System, Brookings Papers on Economic Activity (02/2010), pgs. 261-312.

Figure 4: Traditional and NBFi intermediation

Source: Gorton & Metrick (2010)

The traditional model of credit intermediation (left) revolves around banks taking deposits from, and granting loans to households and businesses. The wholesale funding model (right), intermediated by NBFIs via the capital markets, is based on banks either issuing securities to investment funds in return for funding (e.g. through securitisation), or posting securities as collateral to obtain short-term funding, e.g. from investment funds (through repo transactions).

A shift of bank funding away from deposits was also welcomed in some quarters as a potential gain for financial stability. Earlier financial crises, in particular the string of bank failures which started in the US in October 1929 and plunged the global economy into the Great Depression, had highlighted the **vulnerability of deposit-funded banks** to bank runs. Despite the introduction of deposit guarantee schemes (DGS) to protect depositors and stem contagion, limits on the guaranteed amount (per account or client) still left large depositors, especially corporate clients and other financial institutions, exposed, and therefore prone to panic-induced withdrawals.²⁵ The advent of MMFs therefore not only offered these large corporate depositors a liquid, often higher-yielding alternative to bank deposits, apparently as safe as guaranteed deposits, but still allowed the bank to tap into these large pools of liquidity, via MMFs and the repo market.

Moreover, banks have come to value the **flexibility** to reconfigure and recalibrate their short-term funding options continuously on the capital markets, which has allowed them to further optimise their funding structures, adjust the maturity profile of their liabilities, and thus reduce their cost of capital. The perceived, and sometimes illusory, availability of boundless, near-instant **liquidity**, and the fact that short-term interest rates are lower than long-term rates most of the time,²⁶ has incentivised banks, at the

²⁵ On the mechanics of bank runs, see Diamond, D.W. / Dybvig, P.H., Bank Runs, Deposit Insurance, and Liquidity, Journal of Political Economy, University of Chicago Press, vol. 91/3 (1983), pgs. 401-419.

²⁶ Except in rare circumstances when interest rates on debt with shorter maturities are higher than those on longer-term debt (*inverted yield curve*).

margin, to prefer short-term funding over long-term funding. This, however, increases the maturity/liquidity transformation, and hence the risk profile of the bank's balance sheet. If liquidity in the wholesale market dries up during a period of stress, as in the Global Financial Crisis of 2007-09, banks that are overreliant on rolling over short-term funding face a high risk of a liquidity and, in due course, solvency crisis.

The functioning of wholesale funding markets is critically reliant on **collateral**. With asset managers acting both as the main source of demand for collateral and as ultimate providers of collateral, the growth of NBFIs has led to an increasingly collateral-intensive financial system and created an insatiable demand for safe and liquid debt instruments. **Sovereign debt** is still considered the safest and most liquid asset and accounts for **ca. 85-90%** of all collateral in the EU repo markets.²⁷ Growing demand for safe assets, in line with the rise of *shadow banking*, has raised concerns in some parts about the supply of suitable collateral. A decline in the availability of collateral, which could limit liquidity and leverage in the financial system, is seen by some as a potential brake on credit, and hence on economic growth. In the absence of common EU debt issuance (the "EU safe asset"), securitisation has become the frontrunner to fill this gap. This explains in part the support from the ECB for a revival of securitisation for collateral creation and monetary policy transmission purposes.²⁸

When financial institutions hand over collateral in securities financing or derivative transactions this collateral may be eligible for re-use by the receiving counterparty. Depending on the terms of the transaction, the recipient may use it for his own purposes, e.g. as collateral for another, separate securities financing or derivative transaction with a third party. This **re-use of collateral** is seen by market participants as an important source of funding and market liquidity. Regulators and supervisors, however, have raised concerns about this practice. For example, the same piece of collateral may be used to back a chain of transactions and may therefore contribute to system-wide **leverage**. The use of the same security as underlying collateral for different transactions increases the sum of exposures in the financial system and, as a result, creates leverage across the intermediation chain.²⁹ Collateral re-use thus becomes a significant driver of leverage in the financial system. The frequency of collateral re-use (also known as *velocity*) rises and falls in line with market activity and is therefore implicitly and **strongly pro-cyclical**.

iii. Risk transfer markets

Whereas the wholesale funding markets act as a source of short-term liquidity for market participants to finance new or refinance existing assets, the risk transfer markets

27 International Capital Market Association (ICMA), European Repo Market Survey No. 48 (December 2024), April 2025, pg. 31. It is worth noting that debt issued by EU governments accounts for only ca. 50%, the remainder is comprised of US, UK, Japanese and other overseas government debt. US Treasuries represent the single largest pool of collateral for repos in the EU (ca. 15%).

28 Hache, F., A Missed Opportunity to Revive 'Boring' Finance? A Position Paper on the Long Term Financing Initiative, Good Securitisation and Securities Financing, Finance Watch Report, December 2014.

29 Brumm, J. / Grill, M. / Kübler, F. / Schmedders, K., Re-use of Collateral: Leverage, Volatility, and Welfare, ECB Working Paper Series No 2218, December 2018, pg. 6.

are concerned primarily with **redistributing** some or all of the risk associated with a given asset. Risk transfer markets, especially derivatives and securitisation markets, allow risk to be transferred from parties who do not want to bear it to those who are willing to take it on. It is argued that these markets enhance the ability of banks to manage exposures, reduce regulatory capital requirements, and decrease volatility in their earnings by shifting risks to parties with more appetite for risk-taking, and more capacity to absorb risk, namely the NBFI sector. On the other hand, the sector's **capacity is not unlimited**, and may be overestimated. Excessive and opaque risk-taking, especially through OTC derivatives, has been identified as one of the root causes of the Global Financial Crisis of 2007-09.³⁰

Most of the time, risk transfer involves the use of derivative contracts (Section 2.3.3). In the real economy, businesses make use of the risk transfer markets to offset (*hedge*) risks related to their business. For a long time, farmers, miners, and manufacturers have been selling their harvest, produce, or other goods to customers or merchants in advance (→ **forward sale**) to lock in a fixed price and protect themselves against sharp fluctuations in the market price. Buyers, in turn, have been able to secure a steady supply of goods at predictable cost. Originally, these → **hedging** transactions were meant to be **settled physically**, i.e. buyers would ultimately take delivery of the underlying physical goods. Before long, however, traders discovered derivatives as a way to take **speculative** positions on a wide range of **underlying assets**, including commodities (e.g. agricultural produce, metals and minerals, oil and gas), energy, or freight capacity, for the sole purpose of profiting from expected future fluctuations in market prices. They were usually not interested in taking ownership of the underlying asset so that these trades were **settled in cash**. With cash settlement rapidly becoming the norm the role of derivative contracts as instruments of trade finance was eclipsed by their use as financial instruments. Banks, especially investment banks, were instrumental in this transition.

Whereas most trading of derivative contracts still takes place bilaterally (**over the counter, OTC**), the experience of the Global Financial Crisis of 2007-09 triggered a major effort by global regulators to encourage moves towards standardised contracts traded on public exchanges and settled centrally through dedicated infrastructures (→ Central Counterparties, CCPs). Unlike traditional clearing houses, the **role of CCPs** is not only to register, process and settle transactions between the parties but to step in and become the contracting counterparty for each of the parties, thus guaranteeing that transactions are settled even in the event of a party defaulting. This role implicitly makes them systemically important actors and, although they are operators of infrastructure, strictly speaking, NBFIs themselves. Since CCPs are usually owned jointly by their users, in practice often major banks, they can also become new channels of systemic instability and contagion. In order to avoid spillover, and to limit the risk of CCPs having to be rescued with public support, the global standard-setters

30 Basel Committee on Banking Regulation / Board of the International Organization of Securities Commissions, Margin Requirements for Non-Centrally Cleared Derivatives, July 2019, pgs. 3-4.

– the FSB, Basel Committee and IOSCO – have developed a framework for the recovery and resolution of CCPs, which has also been adopted in the EU. The peculiar status of CCPs is also reflected in the fact that they are supervised directly by the European Securities and Markets Authority (ESMA).

Although CCPs have become a critical piece of the post-crisis framework the vast majority of derivative trading (more than 90%) still takes place in the OTC markets. This is reflective of the fact that only a few categories of derivatives – mainly equity, commodity, and interest-rate futures and options – lend themselves to standardisation and trading on-exchange. Most credit derivatives, in particular swaps, are highly bespoke and tailored to match the specific characteristics of the underlying assets and the practical requirements of the parties. Some categories of OTC derivatives are negotiated bilaterally but centrally cleared through CCPs (Section II.2.3.3.e). CCPs routinely require → margins to be posted for centrally-cleared derivatives while margin requirements for OTC derivatives are, a priori, subject to agreement between the parties (Section 2.3.3.e).

c. Structures and instruments

So-called structured finance and derivatives are the two central pillars of *shadow banking*. This section explores some of the principal structures and instruments which facilitate credit intermediation in the NBFI sector.

i. Securitisation

Definition and concepts

Securitisation is the practice of pooling and repackaging illiquid assets (loans) and issuing debt securities (→ Asset-Backed Securities, ABS).³¹ Interest payments and the repayment of the principal amount of these debt securities at maturity are made from the payments received from the original borrowers under the terms of the underlying loans. Banks use securitisation to (i) refinance these loans, partially or in full, with external funds from capital market investors; (ii) transfer credit risk to external investors and free up regulatory capital for new loans and/or distributions to their own investors; and/or (iii) transform illiquid loans into (more) liquid tradeable securities that can be sold to investors and/or used as collateral to obtain liquidity from the central bank through security financing transactions (Section 2.3.2).

True-sale (cash) securitisation

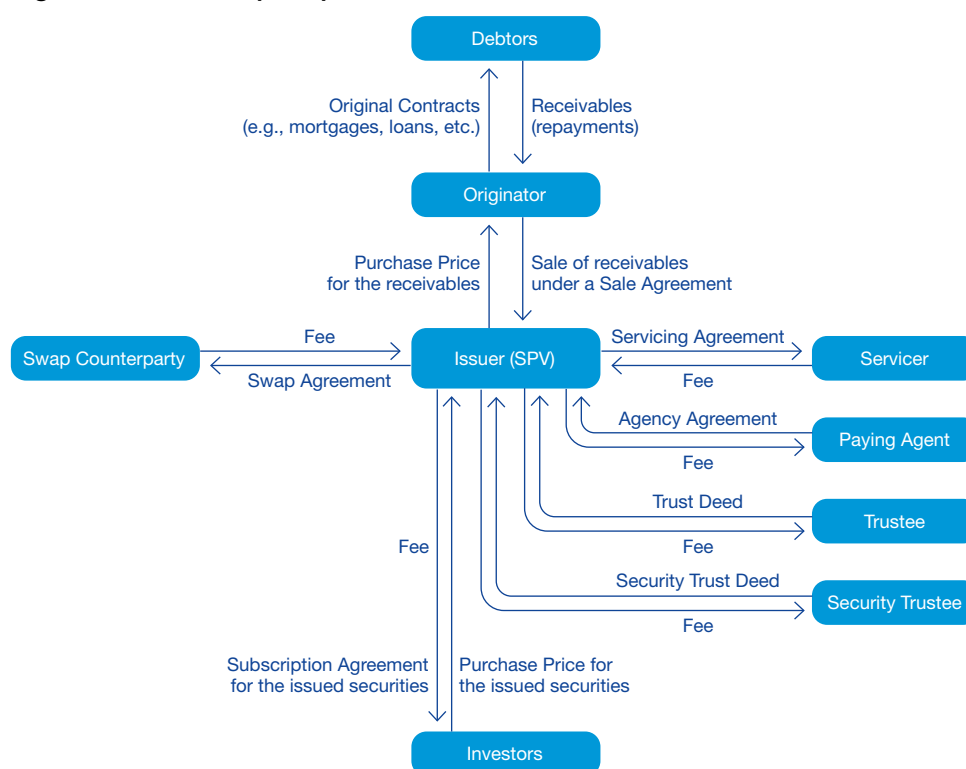
In a *true-sale* (cash) securitisation, a bank selects and pools a number of loans with similar characteristics – typically residential or commercial mortgages, vehicle loans, equipment leasing contracts, or certain categories of corporate or consumer loans – which it originated and carries on its balance sheet. These loans are then sold to

³¹ For a more comprehensive introduction to securitisation see Stiefmueller, C.M., Introduction to Securitisation: Structures, Regulation and Market for Asset-Backed Securities in the EU, Finance Watch Position Paper, 29 October 2024.

a → special purpose vehicle (SPV), a separate legal entity specially created for this transaction and managed by an external party. The originating bank provides comprehensive information and disclosures about the quality of these loans, determining the purchase price of the portfolio. The SPV will then issue → asset-backed securities, which are either placed with investors or retained by the originating bank.

The money raised through this issuance is paid by the SPV to the bank for the purchase of the loans. In practice, the bank will issue against the pool of loans several types of securities with different seniorities, including equity (*first loss*), mezzanine, and senior debt (*tranching*). Tranching enables the issuer to obtain a higher credit rating for the senior notes, which have a preferential claim on cash flows from the underlying asset pool. In 2024, total issuance of true-sale securitisations in Europe (incl. the UK) amounted to ca. 245 EUR bn.³² Of this amount, only ca. 60% was placed on the market – typically with asset managers (pension funds, investment funds, hedge funds), other NBFIs, and other banks – while ca. 40% was retained on the balance sheet of the originating banks.

Figure 5: True-sale (cash) securitisation



Source: Slaughter & May (2024)

³² Association for Financial Markets in Europe (AFME), Securitisation Data Report: Q4 2024 & 2024 FY. European Structured Finance, 06 March 2025.

Synthetic securitisation

In a synthetic securitisation, the originating bank identifies a portfolio of loans on its balance sheet and transfers some or all of the credit risk associated with these loans to a counterparty, usually a hedge fund, pension fund, or insurance company. This is done by way of a contractual agreement, such as a financial guarantee or a bespoke (*over the counter*, OTC) credit derivative contract. Usually, the contract will cover only the junior tranches, in particular the mezzanine tranche, which accounts for most of the regulatory capital requirement.³³ This structure does not necessarily involve transferring the loans to an SPV and is therefore less expensive to implement. Nonetheless, the originating bank may obtain regulatory capital relief if it can demonstrate to the supervisory authority that the transaction meets the criteria of a **Significant Risk Transfer (SRT)** under Art. 244–245 of the Credit Requirements Regulation (CRR III). In the EU, the terms *synthetic securitisation* and Significant Risk Transfer (SRT) are often used synonymously because the vast majority of all synthetic securitisations are SRT transactions.³⁴ In 2024, the total volume of synthetic/SRT securitisations in Europe (incl. the UK) amounted to ca. 155 EUR bn.³⁵

SRT transactions may be sub-divided further into two categories:

- *Unfunded* SRT transactions are underwritten, usually by an insurance undertaking or private credit fund, in the legal form of an insurance contract (financial guarantee) or as a credit derivative (Credit Default Swap, CDS).
- *Funded* SRT transactions are backed by collateral, e.g. the proceeds from issuing Credit-Linked Notes (CLNs), a form of unsecured short-term security; these notes are placed with a counterparty providing credit protection, usually private credit funds, pension funds, and other asset managers.

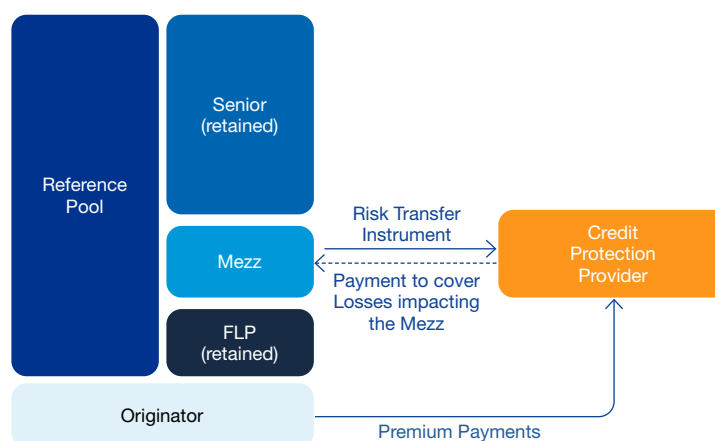
In an **unfunded securitisation**, the obligation of the counterparty to compensate the bank for any losses from the securitised pool of loans is not collateralised but relies solely on the creditworthiness of that counterparty. When a loss occurs, the bank will lodge a demand for payment which the protection provider is contractually bound to meet.³⁶

³³ Banking Policy Institute (bpi), Synthetic Risk Transfer Issue Summary, 10 September 2024.

³⁴ 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.

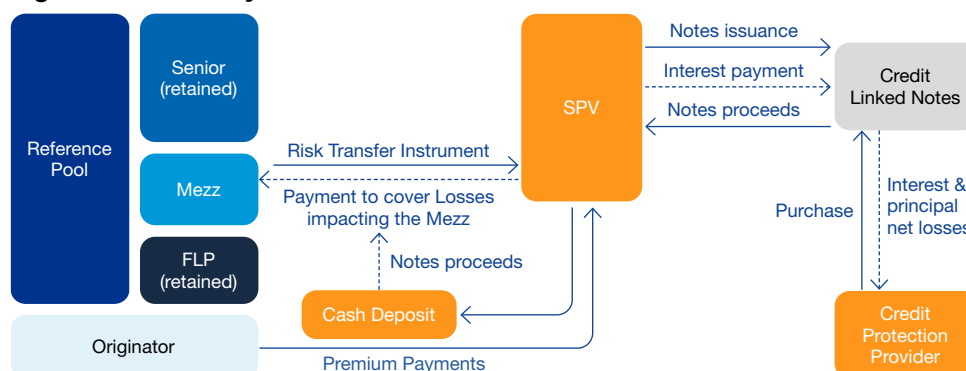
³⁵ Association for Financial Markets in Europe (AFME), Securitisation Data Report: Q4 2024 & 2024 FY. European Structured Finance, 06 March 2025.

³⁶ Bell, I. / Bennett, M. / Duponcheele, G. / Joulia-Paris, T. / Ormezzano, V., The Increasing and Stabilising Role of (Re) Insurance Companies in Providing Credit Protection: An Analysis Across Key Jurisdictions, International Association of Credit Portfolio Managers (IACPM), 02 May 2025, pg. 6.

Figure 6: Unfunded synthetic securitisation

Source: KPMG (2025)

In a **funded securitisation**, the counterparty (protection provider) invests in → credit-linked notes (CLNs) issued by the bank or an SPV. The cash proceeds serve as collateral for its obligation to cover losses on the pool of loans. If a loss occurs on the pool, the cash is removed from the cash security and paid to the bank. At the end of the transaction, any unused cash security is repaid to the protection provider.³⁷ If a pool of loans incurs more losses than expected, the bank pays back less on the notes.

Figure 7: Funded synthetic securitisation

Source: KPMG (2025)

Some investors in synthetic securitisation transactions, such as private credit funds, are often leveraged, i.e. they may have obtained funding from banks to invest in CLNs (through non-repo financing), or banks have provided loans using CLNs as collateral (through repo financing). This may justify the argument that the credit risk is not truly being moved out of the banking system.³⁸

³⁷ Bell, I. et al., The Increasing and Stabilising Role of (Re)Insurance Companies in Providing Credit Protection, pg. 6.

³⁸ Banking Policy Institute (bpi), Synthetic Risk Transfer Issue Summary, 10 September 2024.

It appears quite clear that synthetic securitisations are complex transactions. Accordingly, they are not covered by the definition of “simple, transparent, and comparable” (STC) securitisations under the Basel III framework and do not qualify for preferential treatment for the purposes of calculating banks’ regulatory capital. The EU decided, however, in December 2020 to move away from the Basel III standard and to include funded synthetic securitisations into its definition of “simple, transparent, and standardised” (STS) securitisations.³⁹ Today, ca. 50% of all synthetic securitisations in the EU are STS securitisations,⁴⁰ and thus qualify for lower regulatory capital requirements. The proposed reform of the EU securitisation framework⁴¹ would widen the gap between EU legislation and the Basel standards even further.

In the US, global reinsurers participate in Credit Risk Transfer (CRT) programmes of the two federal mortgage agencies, Fannie Mae and Freddie Mac, a business model reminiscent of the US *monoline insurers*, who provided bond/financial guarantee insurance for many of the → asset-backed securities (ABS) issued in the run-up to the Global Financial Crisis, and became some of its earliest, and costliest victims.⁴²

Risks and regulation

As outlined prior, securitisation is an instrument to redistribute **credit risk**, first and foremost. The practice by mortgage lenders in the US to “originate and distribute” mortgages through securitisation was, arguably, the root cause of the Global Financial Crisis.⁴³ Mortgages, in particular on residential property, were packaged and tranching into → Residential Mortgage-Backed Securities (RMBS), rated by credit rating agencies, and sold to investors who bought them for their attractive interest yields and confidence-inspiring credit ratings. Information on the specifics of the underlying pool of loans was scarce and often known only to the originating bank and the credit rating agency. As a result, loans of increasingly dubious credit quality (*subprime* mortgage loans) found their way into these securitisations and, in due course, derivative instruments known as Collateralised Debt Obligations (→ CDOs) where → RMBS, and other → ABS were once again packaged, tranching, rated and sold. Predictably, this house of cards collapsed when borrowers began to default in large numbers, triggering a

39 Regulation (EU) 2021/557 and Regulation (EU) 2021/558 of 31 March 2021 OJ L 116, 06 April 2021, pgs. 1–32 were enacted as part of the Capital Markets Recovery Package with the ostensible purpose of mitigating the economic impact of the CoViD-19 pandemic.

40 Association for Financial Markets in Europe (AFME), Securitisation Data Report: Q4 2024 & 2024 FY. European Structured Finance, 06 March 2025.

41 Proposal for a Regulation of the European Parliament and of the Council amending Regulation (EU) 2017/2402 of the European Parliament and of the Council of 12 December 2017 laying down a general framework for securitisation and creating a specific framework for simple, transparent and standardised securitisation, COM/2025/826 final, 17 June 2025; 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.

42 Bell, I. / Bennett, M. / Duponchee, G. / Joulia-Paris, T. / Ormezzano, V., The Increasing and Stabilising Role of (Re) Insurance Companies in Providing Credit Protection: An Analysis Across Key Jurisdictions, International Association of Credit Portfolio Managers (IACPM), 02 May 2025.

43 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).

cascade of credit rating downgrades and plummeting prices of these securities. The difficulty to properly assess credit risk in a complex tranching product, and to track the eventual distribution of risk throughout the financial system, remains a key challenge in securitisation.

In the wholesale funding markets, securitisation also acts as a source of **liquidity/maturity risk**. Before the Global Financial Crisis → ABS were very popular as collateral for repo transactions. The collapse of the → RMBS market caused the repo markets to seize up. Banks that were known to hold large → RMBS portfolios and/or were too reliant on short-term wholesale funding (2.2.2) were no longer able to roll over maturing repo positions or to refinance their liabilities in other ways at affordable terms. In analogy to the classic model of a *bank run*, Gorton and Metrick labelled this collective rush by counterparties to unwind repo trades with institutions perceived as vulnerable as a “run on repo”. Lehman Brothers, the most notorious example, was effectively frozen out of the market months before its eventual collapse. The complexity of these structured products is bound to always leave them exposed if investors suddenly lose faith, e.g. in the quality of assets or the quality and/or integrity of the modelling of the product.

Securitisation relies on tranching, a financial modelling technique which allocates the expected future cash flows from a pool of assets, e.g. the repayments from a pool of mortgages, to different classes of securities (*tranches*) with different levels of seniority. The performance of these securities, especially in stressed market conditions, depends critically on the accuracy of the cashflow projections (the so-called *waterfall*) and risk analysis of the originating bank and credit rating agency. **Agency risk** (moral hazard and conflicts of interest), and overconfidence in financial modelling (**model risk**) were instrumental in the collapse of the securitisation market which precipitated the Global Financial Crisis of 2007-09.⁴⁴ Much of the regulatory response since then has focused on ways to address or mitigate these risk factors, which are specific to securitisation.

Since the Global Financial Crisis, global regulators, led by the FSB, the Basel Committee and IOSCO, have developed a comprehensive set of standards for securitisation under the Basel III framework. The EU adopted the Basel III standards, with some deviations, in 2017 in the guise of Regulation (EU) 2017/2402 (Securitisation Regulation, SECR), and amendments to the Capital Requirements Regulation (CRR). This framework comprises a wide range of measures:

- Detailed **due diligence** requirements for investors in securitisations
- Enhanced **transparency and disclosure** requirements for the originator
- Registration of the issue with a **securitisation repository**, and **reporting** requirements
- **Risk retention** by the originator (“skin in the game”) of min. 5% of the issue volume

⁴⁴ 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).

- Higher, “non-neutral” **capital requirements** (→ *halfpipe model*)⁴⁵
- Common criteria for Simple, Transparent and Standardised (**STS**) securitisation

In January 2025, the Financial Stability Board (FSB) completed a comprehensive, year-long evaluation of the effectiveness of the new framework. In its report,⁴⁶ it concluded that the reforms “have contributed to the resilience of the securitisation market without strong evidence of material negative side-effects on financing to the economy.” It warned, however, that “the post-GFC securitisation market has not yet been tested through a full credit cycle to fully confirm the evidence on enhanced resilience.” Regrettably, the EU does not appear minded to wait for the evidence to be delivered: under strong pressure from the EU banking sector, and with the Draghi and Letta reports positioning securitisation as a panacea to revive Europe’s flagging competitiveness and complete the so far elusive Capital Markets Union, the Commission forged ahead in June 2025 with a legislative proposal which all but abandons any pretence of abiding by the Basel III framework.

ii. Securities Financing Transactions (SFT)

Definition and concepts

Securities Financing Transactions (SFT) are (usually bilateral) transactions between investors that allow one side to take a position in a security they do not actually own, while allowing the other side to generate revenue from securities they hold without relinquishing ownership. There are a variety of SFTs, including repurchase agreements (→ **repo**), securities lending/borrowing, and margin lending transactions.

SFTs represent a significant, and growing part of the revenue of institutional investors, such as insurers, asset managers and money market funds, custodian banks and the prime brokerage arms of investment banks as a source of **incremental (fee) income** on securities they hold, either on their own books or in custody. During the long phase of low or even negative interest rates following the Global Financial Crisis, SFTs became an essential source of income, especially for investors with large fixed-income portfolios, such as pension funds, which were particularly exposed. As discussed earlier (Section II.2.2.2), SFTs also play a critical role as a source of inexpensive, **collateralised short-term funding** for banks. As of year-end 2023, SFTs accounted for ca. 10% of European banks’ total funding.⁴⁷

According to a recent report from ESMA,⁴⁸ the total outstanding exposure of SFTs in the EU was ca. **EUR 9.8 trn**, as of September 2023. Repos accounted for EUR

45 Joint Committee of the European Supervisory Authorities (JC ESA), Joint Committee Advice on the Review of the Securitisation Prudential Framework (Banking), JC/2022/66, 12 December 2022, pgs. 76-79.

46 Financial Stability Board (FSB), Evaluation of the Effects of the G20 Financial Regulatory Reforms on Securitisation. Final Report, 22 January 2025, pgs. 3-4.

47 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.

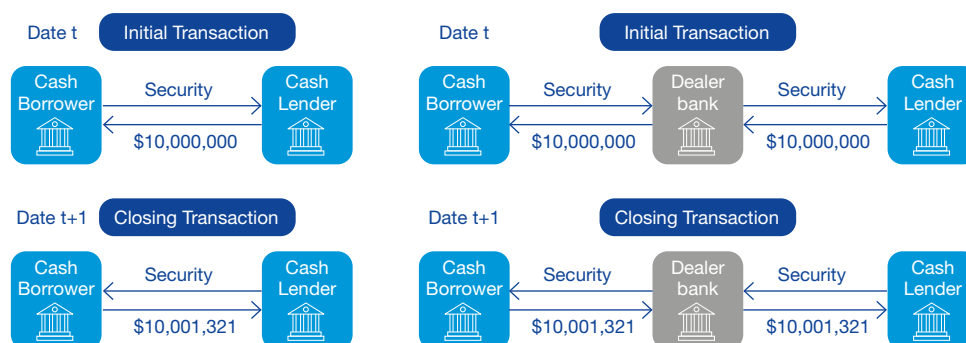
48 European Securities and Markets Authority (ESMA), EU Securities Financing Transactions Markets 2024, ESMA50-524821-3147, 09 April 2024.

6.7 trn (68% of the total), securities lending for EUR 2.3 trn (23%), buy-sell back for EUR 743 bn (8%), and margin lending for EUR 124 bn (1%). Of ca. 3,000 reporting market participants in the repo market ca. 40% were investment funds, ca. 20% banks, and ca. 12% other NBFIs (including CCPs). Banks accounted for 55% of total exposures, however, other NBFIs for ca. 40%, and investment funds for only ca. 5%. Ca. 43% of repo transactions (by principal amount) were concluded on exchange, but only 8% of securities lending transactions.

Repurchase agreement (Repo)

Repurchase agreements are the most current form of SFTs and one of the main sources of liquid collateral in the financial system, sometimes described as “the life-blood of the modern economy”.⁴⁹ Repos are a form of **collateralised lending**: the buyer of the repo (lender) agrees to provide short-term funding to the seller (borrower). The underlying security, often a highly-rated bond, is sold temporarily by the borrower to the lender, usually at a discount to its market price (→ *haircut*). At the end of the agreed period, the borrower buys back (repurchases) the security at a slightly higher price. If the borrower (the original owner of the asset) defaults during the contractual life of the repo, the lender (the new owner of the asset) may sell the asset to a third party to offset his loss.

Figure 8: Bilateral / tri-party repo agreement



Source: bb-economy.com (2025)

A **reverse repo** describes substantially the same agreement, but from a different perspective. The seller of the reverse repo (lender) sells the underlying security to the buyer (borrower) temporarily, with an agreement to repurchase it at a later date. At the end of the agreed period, the seller (lender) buys back (repurchases) the security at a slightly higher price. This mechanism is used frequently by central banks to steer interest rates and manage the amount of liquidity in the financial system through open-market operations.

49 Wilmot, J. et al., Market Focus: When Collateral is King, Credit Suisse Global Strategy Research, 15 March 2012.

Securities lending / borrowing (SLB)

Securities lending / borrowing is a transaction involving the transfer of securities, accompanied by an agreement ensuring the return of equivalent securities or commodities at a later date. For the party transferring these assets, it is considered lending, while for the receiving party, it is considered borrowing.⁵⁰ Securities lending allows one market participant (borrower) to borrow securities from another party (lender) without having to purchase them outright. The terms of the loan are usually set out in a bilateral agreement. The borrower provides the lender with collateral, in the form of cash or securities of value equal to or greater than the loaned securities, plus an agreed-upon margin. As payment for the loan, the parties negotiate a fee, which is usually quoted as an annualised percentage of the value of the loaned securities.

Key lenders of securities include insurance companies, pension funds, and other investment fund managers, as well as Central Securities Depositories (CSD) or custodian banks, which hold large amounts of securities on behalf of their clients. Their counterparties are often banks' trading desks and hedge funds looking to construct a 'short' trading position (→ **short-selling**). There is an argument that securities lending by institutional investors might be difficult to reconcile with their fiduciary duties to clients, which require them to optimise the value of those clients' investments. Securities lending makes it easier for short-sellers to bet against the securities owned by the fund's clients, creating downward pressure on securities prices and potentially lowering investment returns. Moreover, because voting rights are relinquished when equity securities are lent, securities lending also limits the capacity of fund managers to actively represent the interests of their investors by participating in the annual general meetings (AGMs) of portfolio companies.⁵¹

For **market makers**, the ability to borrow securities, instead of owning them outright, significantly reduces the cost of holding inventory, which may contribute to tighter pricing and higher market liquidity. Securities lending is an important instrument to prevent **failed transactions**, i.e. transactions that cannot be settled as agreed. Settlement fails occur when a party is unable to deliver the security at the required time, e.g. because the security is momentarily unavailable. Settlement fails can be costly – the party which fails to deliver may be liable for cash penalties under the Settlement Discipline Regime of Regulation (EU) No. 909/2014 (Central Securities Depositories Regulation, CSDR).⁵² Oftentimes securities received from one transaction are required to make an onward delivery in another (*settlement chain*). When one transaction fails, it causes a delivery failure in the next link of that chain. Securities lending allows the parties to bridge temporary delivery fails and re-boot the settlement chain.

50 European Securities and Markets Authority (ESMA), EU Securities Financing Transactions Markets 2024, ESMA50-524821-3147, 09 April 2024, pg. 9.

51 Hache, F., A Missed Opportunity to Revive 'Boring' Finance?, pg 76.

52 Regulation (EU) No 909/2014 of the European Parliament and of the Council of 23 July 2014 OJ L 257, 28 August 2014, pgs. 1–72.

Risks and regulation

Securities financing increases **interconnectedness**. The collateral chains created by SFT increase the web of contracts, and the risk of contagion between entities in the financial system, and consequently increase the vulnerability of the system to shocks.

Securities financing markets also provide a mechanism by which non-banks can build **excessive leverage** in an upswing, when asset prices rise and inflate collateral values. The loosening of financing conditions can be exaggerated if the degree of overcollateralisation required by market participants – or collateral *haircuts* – falls in tandem. In a downswing, when asset prices fall and haircuts rise, non-banks are often forced to deleverage by selling assets. This can amplify the initial fall in asset prices, further reducing the value of collateral held by other financial institutions and leading to rapid deleveraging, and a withdrawal of credit throughout the system.⁵³

In a traditional system, where banks are funded mostly with deposits, which are relatively stable or *sticky* in normal times, the overall quantity of deposits tends not to vary much over time. In a financial system dominated by collateralised funding and wholesale markets, however, fluctuations in asset prices, and hence collateral valuations, result in a high degree of **procyclicality** and potential volatility of bank funding and, therefore, of leverage across the system. When markets go up and risk appetite is high, investors are willing to accept more assets as collateral. Haircuts and margin requirements decline, → *mark-to-market* values of the collateral increase, and so does the velocity of collateral. All of this enables banks to obtain more and more funding against a given pool of assets. Symmetrically however, when markets turn south and investors turn pessimistic, the opposite process takes place: assets of lower quality are no longer accepted as collateral, investors demand higher haircuts and margins, and *mark-to-market* values of collateral assets decline. As this funding is used by banks to provide loans and make investments, the expansion of funding during good times increases credit, and thus leverage, throughout the system, while its withdrawal reduces it. In this scenario, bank leverage is a direct function of funding levels, fluctuating asset values, and volatility, and therefore highly procyclical.⁵⁴

In an earlier publication,⁵⁵ Finance Watch explored in more detail how SFTs increase the **risk of → fire sales** in collateral securities and related negative externalities. Fire sales of collateral securities may be caused by many factors, including an initial decline in the value of the collateral or an increase in its volatility that may lead to counterparties demanding higher haircuts. They may also be caused by concerns about the creditworthiness of a broker-dealer using SFT, either for its own funding or its clients, or by a → CNAV MMF fearing a run from its investors. The Global Financial

⁵³ Bank of England, Financial Stability Report, Issue No. 34, November 2013, pg. 44.

⁵⁴ Hache, F., A Missed Opportunity to Revive 'Boring' Finance?, pg 77.

⁵⁵ *ibid*, pg 79.

Crisis provided ample illustrations of fire sales when confidence in the value of → ABS and → ABCP used as collateral collapsed leading to runs in the wholesale markets.⁵⁶

→ Haircuts, the differential between the market value of the collateral and the loan amount, are a key determinant of the amount of leverage that can be obtained via a repo.⁵⁷ If market participants set haircuts too low, the leverage generated in repos may reach levels that are undesirable from a financial stability perspective.

In 2014, the Financial Stability Board (FSB) proposed a framework of **numerical haircut floors** for non-centrally cleared securities financing transactions in which financing is provided to NBFIs against collateral other than government securities (e.g. corporate bonds and → ABS).⁵⁸ The framework was revised several times, most recently in September 2020.⁵⁹ It mandates minimum haircut levels, which are determined by the type and maturity of the underlying collateral. It is intended as a backstop, especially in a market upturn, to limit the possible build-up of leverage outside the banking system and reduce the procyclicality of that leverage. It is aimed specifically at NBFIs, and on the assumption that repo-related leverage at banks and broker-dealers is adequately covered already by bank prudential regulation. The deadline for FSB member jurisdictions to implement the framework was set to January 2023 for bank-to-NBFI transactions and to January 2025 for NBFI-to-NBFI transactions. As of today it has not been implemented in the EU.

iii. Derivatives markets

Definitions and concepts

Derivative contracts are **financial contracts** between two market participants to exchange cash or financial instruments at a future date, or over an agreed period of time, at agreed terms based on the absolute price and/or relative performance of an **underlying asset or benchmark**. Derivatives are used to transfer risk and are used in financial markets to hedge existing exposures or gain exposure to an underlying asset, e.g. with a view to speculation (Section II.2.2.3).

Derivatives markets have grown rapidly over the past decade, allowing for more sophisticated risk management and the transfer of risk to non-bank financial intermediaries. However, the growth of these markets, particularly in the unregulated and lightly regulated space, has raised concerns among regulators and supervisors about

56 Stein, J.C., The Fire-Sales Problem and Securities Financing Transactions, Speech at the Federal Reserve Bank of New York Workshop on Fire Sales as a Driver of Systemic Risk in Triparty Repo and other Secured Funding Markets, New York, 04 October 2013.

57 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.

58 Centrally-cleared repos and non-cleared repos backed by government bonds often display no haircut. Most centrally-cleared repos are backed by government bonds whereas non-cleared repos tend to involve a wider variety of instruments pledged as collateral.

59 Financial Stability Board (FSB), Transforming Shadow Banking into Resilient Market-Based Finance. Regulatory Framework for Haircuts on Non-Centrally Cleared Securities Financing Transactions, 12 November 2015 (updated on 19 July 2019; 25 November 2019; and 07 September 2020).

transparency, the potential for regulatory arbitrage, and the systemic risk posed by interconnectedness among market participants.

Figure 9: Overview of derivative contracts

By type:

- 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.
- Futures contract: a standardised equivalent of the forward contract, which may be traded on-exchange and centrally settled and is subject to margining.
- Option: a contract that conveys the right, but not the obligation to buy/sell an asset (call/put option) at a specified future date at an agreed price (strike price).
- Swap: a contract between two parties to exchange cash flows based on the performance of an underlying asset or other financial benchmark.

By underlying asset:

- Equity, e.g. on indices or individual securities
- Interest rate, e.g. on national or international benchmark rates
- Credit, e.g. on an individual entity or a specific portfolio of loans
- Commodity, e.g. on minerals, metals, energy or agricultural products

By settlement:

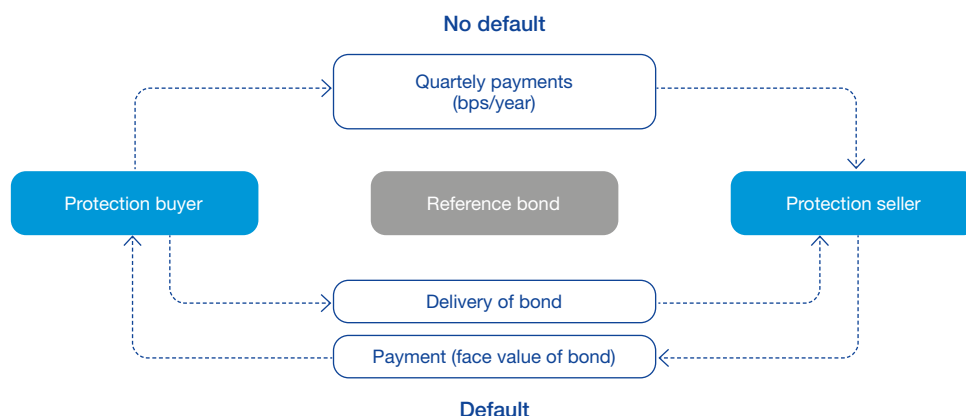
- Over the counter (OTC)
- Centrally cleared (CCP)

Derivatives are a source of leverage in that they allow market participants to gain exposure to large amounts of the underlying asset with only very limited capital investment. For NBFIs engaged in shadow banking activities they act as a powerful substitute for banks' ability to create credit. Credit *created* in this way is, however, literally *derivative* in that it typically involves bank lending at some stage of the process.

NBFIs, especially hedge funds, are among the most active market participants in the derivatives markets. Credit derivatives, such as Credit Default Swaps (CDS), are specially designed to transfer credit risk between counterparties and are therefore particularly relevant for *shadow banking*.

Credit Default Swap (CDS)

In a Credit Default Swap (CDS), the seller, usually a highly-rated financial entity, agrees to compensate the buyer in the event of default by the debtor or another credit event which affects the credit quality of an underlying (reference) asset during the agreed term of the swap. The seller of the CDS thus provides insurance to the buyer against default or a deterioration of the credit quality of the reference asset, which could be a specific fixed-income security or loan, a portfolio of securities or loans, or a specific borrower, e.g. a government or corporate entity. In return, the buyer of the CDS makes regular payments (the CDS «fee» or «spread») to the seller and may expect to receive a payoff if the asset defaults.

Figure 10: Credit Default Swap (CDS)

Credit default swaps (CDSs) are used frequently as credit enhancements in structured-finance transactions and to construct synthetic securitisations (Section II.2.3.1.c). They achieved a degree of notoriety during the Great Financial Crisis when one provider alone, American International Group (AIG) issued USD 79 bn of credit protection for → MBS and → CDOs before collapsing when the subprime mortgage bubble finally burst. In the run-up to the crisis CDS were sold to protect investors against the default or decline in value of mortgage-related securities backed by risky loans, helping to launch and expand the market and, in turn, to further fuel the housing bubble.⁶⁰ The reputation of CDS was not enhanced further when the investor George Soros singled them out as the archetypal “toxic instruments” in the aftermath of the crisis (Section II.2.3.3.e).

Activity in CDS has recovered since the crisis. At the end of Q1 2025, the total notional amount of CDS outstanding on the European markets was ca. USD 3.0 trn.⁶¹ The UK accounted for the majority of the activity (ca. 75%) while the EU accounted for ca. 25% (ca. USD 750 bn). Globally, the market for CDS stood at ca. USD 8.5 trn in Q1 2025, well below its pre-crisis peak of ca. USD 62 trn in late 2007. A study by the Bank for International Settlements⁶² suggests that this decline reflects a number of changes in the underlying markets, including the collapse of subprime mortgage lending, a shift towards more highly-rated sovereign exposures, and a move towards central clearing through CCPs.

Total Return Swap (TRS)

In a total return swap (TRS) transaction, two counterparties agree to exchange cash flows based on the absolute performance of an underlying (reference) asset, such as an equity index, an equity security or a bond. One party (buyer) makes payments

60 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), pg. xxiv.

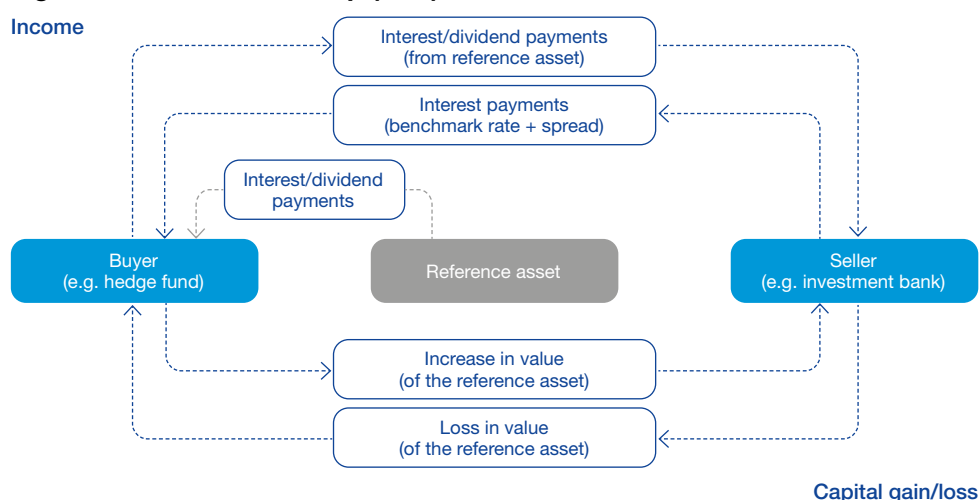
61 International Swaps and Derivatives Association (ISDA), Credit Derivatives Trading Activity Reported in EU, UK and US Markets: First Quarter of 2025, July 2025.

62 Aldasoro, I. / Ehlers, T., The Credit Default Swap Market: What a Difference a Decade Makes, Bank for International Settlements (BIS), BIS Quarterly Review (June 2018), pg. 2.

based on an agreed rate (fixed or variable) while the other party (seller) makes payments based on the return of an underlying asset, which includes both the income it generates and any capital gains. Total return swaps enable an investor, usually a hedge fund, to gain exposure, and obtain full economic benefit from a reference asset with limited capital outlay and a high degree of leverage, and without having to own it outright. The counterparty is usually an investment bank, frequently the hedge fund's → prime broker, which has the requisite balance sheet capacity to acquire and fund the reference asset at a favourable cost of capital.

Archegos, which failed in 2022, obtained large exposures on a small number of equities by entering into total return swap contracts with a few dealer counterparties. By replicating similar positions across counterparties, Archegos was able to take very large positions in these equities. Due to its legal status as a family office its exposure remained unknown to its counterparties, other market participants and regulators. The use of TRSs allowed Archegos to obtain synthetic leverage representing around six times its capital. Without derivatives, Archegos would have needed additional funding (through repo or margin lending transactions backed by collateral) to achieve similar exposures.⁶³

Figure 11: Total return swap (TRS)



Derivative financial instruments and leverage

As noted in an earlier report,⁶⁴ derivatives are, in fact, “the ultimate engine of leverage”. With only a small initial payment (*premium* or *initial margin*) investors and traders are able to take positions on vast quantities of assets. Most of the time derivatives are not used to actually effect a trade in the underlying trade assets but to redistribute risks and returns between financial market participants. They are used, for instance,

⁶³ European Securities and Markets Authority (ESMA), *Leverage and Derivatives – The Case of Archegos*, ESMA 50-165-2096, May 2022 (https://www.esma.europa.eu/sites/default/files/library/esma50-165-2096_leverage_and_derivatives_the_case_of_archegos.pdf).

⁶⁴ Stiefmueller, C.M., *Ten Years After: Back to Business as Usual*, Finance Watch Report, 13 September 2018.

to allow farmers to lock in prices for their crops in advance of harvest time or to protect internationally active companies against exchange rate movements that affect the prices of goods and services they supply across borders. When used in this way derivatives undeniably have a useful role to play.

Looking at the relative size of the derivatives market vis à vis the size of the markets for the underlying assets it becomes soon clear that a very sizable part of trading in derivatives has only the most tenuous, if any, connection to trade flows in the real economy: as of year-end 2024, the nominal amount of over-the-counter (OTC) and exchange-traded derivatives outstanding amounted to **ca. USD 770 trillion**,⁶⁵ equal to approximately **seven times global GDP**.⁶⁶ At USD 130 trillion the volume of foreign-exchange derivatives alone accounts for more than four times the total of all global trade in goods and services in 2024.⁶⁷

Most of the major trading banks hold billions of derivatives contracts on their books. It stands to reason that even minute percentage losses on exposures of this magnitude could be devastating. Derivatives portfolios are hardly ever perfectly hedged – it is, after all, those small differentials that create profit opportunities for the trader and enable banks to reap large profits while the going is good. Global systemically important banks (G-SIBs) still account for the vast majority of this activity. Increasingly, they are being joined by non-banks, such as insurers and fund managers – the *shadow banking* sector.

Risks and regulation

When Lehman Brothers collapsed in September 2008, and Merrill Lynch, AIG, Citigroup and other giants of global finance escaped that same fate by a hair's breadth, policymakers and the general public stood aghast at the sheer volume and almost impenetrable complexity of their derivatives portfolios. Many experts and regulators concluded that the trading in financial instruments had far exceeded its useful boundaries and much of it had become, in the words of Adair Turner, former chairman of the UK Financial Services Authority (FSA), a “socially useless” activity.⁶⁸

As early as 2002, Warren Buffett, the respected and successful investor and chairman of the Berkshire Hathaway investment company, commented in his annual letter to shareholders: “Even experienced investors and analysts encounter major problems in analyzing the financial condition of firms that are heavily involved with derivatives contracts. When [we] finish reading the long footnotes detailing the derivatives activities of major banks, the only thing we understand is that we don't understand how much risk the institution is running.” Calling derivatives “financial weapons of mass destruction”,

65 Bank for International Settlements (BIS), OTC and XTD Derivatives Statistics (as of 30 June 2024).

66 International Monetary Fund, World Economic Outlook Database (April 2025 Edition).

67 ca. USD 31.5 trn, according to World Trade Organisation (WTO) estimates.

68 Turner, A., How to Tame Global Finance, Prospect Magazine, September 2009 (<https://www.prospectmagazine.co.uk/magazine/how-to-tame-global-finance>).

Buffett went on to say, quite presciently: “The derivatives genie is now well out of the bottle, and these instruments will almost certainly multiply in variety and number until some event makes their toxicity clear.”⁶⁹

Shortly after the crisis of 2008, another famous investor, George Soros, chose similar words when he termed certain derivatives, in particular CDS, as “weapons of destruction” and called for an outright ban. “Some derivatives ought not to be allowed to be traded at all. I have in mind credit default swaps. The more I’ve heard about them, the more I’ve realised they’re truly toxic. CDS are instruments of destruction which ought to be outlawed” he told a banking conference in July 2009.⁷⁰

If there were ever any earnest plans to rein in the derivatives markets in the crisis they have only produced modest results to date. The total volume of the derivatives market has not changed materially during the period: at the end of 2017 it was only ca. 8% below its 2007 level. Large annual swings in the volume of OTC derivatives, in particular, make it difficult to draw any reliable conclusions. Efforts to move the trading of derivatives from the OTC market towards regulated exchanges have yielded modest, but creditable success: volumes of exchange-traded futures and options grew at ca. 2%, p.a., while OTC derivatives declined at an average rate of ca. 1%. This progress needs to be put into perspective, however: as of today, all exchange-traded futures and options together account for only 6% of the derivatives market. Today, just as in 2007, the vast majority of derivatives contracts – more than 90% – are still being traded over-the-counter.

Another key policy effort since 2007 has seen a large shift in the clearing and settlement of derivative contracts. To reduce the risk of systemic contagion from the failure of one individual party in a derivative transaction, major jurisdictions, including the EU, have introduced legislation to move clearing of these instruments to dedicated, multilateral clearing facilities (→ Central Counterparties, CCP). While the process of migrating significant volumes of derivatives trades to CCPs appears to be gathering speed,⁷¹ there are also concerns about the unintended systemic impact of concentrating large amounts of exposures in CCPs. Regulators have recognised the need to ensure that these critical nodes are properly capitalised and may be wound up in an orderly manner if they fail, without triggering contagion⁷² but many critical questions remain unanswered.⁷³ The resilience and resolvability of CCPs is a multi-trillion question mark.

69 Berkshire Hathaway, Warren Buffett’s 2002 Letter to Berkshire Shareholders, 21 February 2003.

70 Wheatley, A. / Lewis C., Update 1: Ban CDS as ‘instruments of destruction’ – Soros, Reuters Market News, 12 June 2009.

71 Jenkins, Patrick, How Much of a Systemic Risk is Clearing?, Financial Times, 08 January 2018.

72 *Financial Stability Board*, Guidance on Central Counterparty Resolution and Resolution Planning, 05 July 2017.

73 e.g. König, Elke, Recovery and Resolution of Central Counterparties, Speech at the European Parliament ECON Committee Hearing, Brussels, 22 March 2017; see also: Singh, Manmohan / Turing, Dermot, Central Counterparties Resolution – An Unresolved Problem, International Monetary Fund Working Paper No. WP/18/65, 20 March 2018.

Inadequate margining practices were one of the reasons that encouraged excessive risk-taking and precipitated the Global Financial Crisis of 2007-09. Since 2015, the Basel Committee and the International Organization of Securities Commissions (IOSCO) have developed a methodology for calculating mandatory (initial and variation) margin requirements for OTC derivatives⁷⁴, which has been incorporated into the Basel III framework. In the EU, these requirements have been transposed by way of the European Market Infrastructure Regulation (EMIR).⁷⁵ Certain classes of OTC derivatives are either subject to a clearing obligation under EMIR, i.e. must be cleared centrally through a Central Counterparty (CCP) or may be centrally cleared subject to notification of, and approval by, the European Securities and Markets Authority (ESMA).⁷⁶

iv. Private equity and credit funds

Definition and concepts

Private equity and credit funds have grown rapidly over the past decade and are playing an increasingly important role in financial markets with global assets under management standing at EUR 13.2 trn in 2024.⁷⁷ The bulk of these assets are equity investments, mostly in private, unlisted companies. Global assets under management in private credit funds reached more than EUR 2 trn in June 2024, having increased almost five-fold over the past ten years. In Europe, private markets have grown significantly over the past decade in line with the global trend. Assets under Management (→ AuM) in Europe nearly trebled between 2014 and 2024, from EUR 400 bn to **EUR 1.2 trn for private equity**, and from EUR 150 bn to **EUR 430 bn for private credit**.⁷⁸

Although private equity and credit funds remain a relatively small segment of the market when compared with global fixed income securities outstanding (EUR 128 trn), global banking sector balance sheets (EUR 91 trn), or global equity markets with a total capitalisation of EUR 105 trn,⁷⁹ they have become highly influential and visible in the real economy. Private equity firms own many of the companies and services that populate European citizens' everyday life, from residential housing to utilities and infrastructure, from supermarkets, food and cosmetics companies to hospitals and care homes.

74 Basel Committee on Banking Regulation / Board of the International Organization of Securities Commissions, Margin Requirements for Non-Centrally Cleared Derivatives, July 2019, pgs. 3-4.

75 Regulation (EU) No 648/2012 of the European Parliament and of the Council of 4 July 2012 on OTC Derivatives, Central Counterparties and Trade Repositories (European Markets Infrastructure Regulation, EMIR), OJ L 201, 27 July 2012, pgs. 1-59.

76 European Securities and Markets Authority (ESMA), Public Register for the Clearing Obligation under EMIR, ESMA70-151-2218, 04 June 2024.

77 Buch, C., Hidden Leverage and Blind Spots: Addressing Banks' Exposures to Private Market Funds, European Central Bank (ECB) – The Supervision Blog, 03 June 2025.

78 Buch, C., Hidden Leverage and Blind Spots.

79 *ibid.*

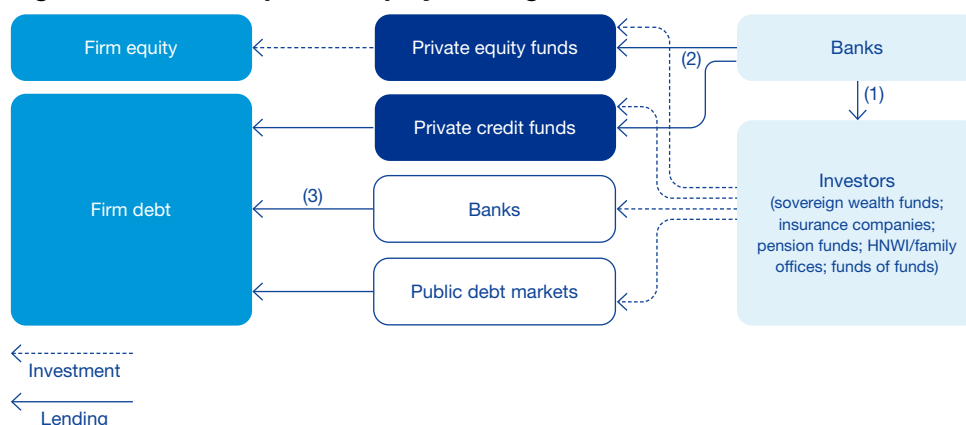
Leverage is an essential part of the business model of private equity funds – it enables them to scale up their purchasing power for acquisitions, reduce funding costs, obtain tax benefits, and optimise returns for their investors. As the size of the private equity industry has grown, so too has the debt it uses to buy companies, enabled by a decade of ultra-low interest rates. Banks are the principal providers of leverage and are closely connected with the private equity sector on multiple levels: they provide debt funding for leveraged buy-outs (LBOs), and lend to private equity-owned portfolio companies, the fund management firms themselves, and the investors that back them. As higher interest rates put pressure on borrowers, regulators are increasingly concerned about the risks the private equity industry could pose to the wider financial system.⁸⁰

Some of the larger private equity fund managers have evolved over time into diversified NBFIs with a variety of alternative investment funds, advisory and trading activities under one roof. Private equity and credit funds managed by the same group sometimes participate in the same transactions and/or invest in each others' portfolio companies, resulting in circular exposures and, potentially, additional channels of contagion.⁸¹

Linkages between private equity / credit and the banking sector

Fund managers and investors use bank financing to introduce leverage, finance investments and provide bridge financing. This financing can happen at different levels: (i) *upstream* to investors in the funds, (ii) *midstream* to the funds directly, or (iii) *downstream* to companies in the funds' portfolios (Figure 12).⁸²

Figure 12: Levels of private equity funding



Source: European Central Bank (ECB) (2024)

80 Aliaj, O. et al., Financial Times: How Private Equity Tangled Banks in a Web of Debt, Financial Times, 24 July 2024.

81 Aliaj, O. / Gara., A. / Platt, E., Blackstone Snaps up 'Circular' Private Equity Credit Risk, Financial Times, 03 July 2024.

82 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.

Leveraged Buy-Outs (LBOs)

A private equity firm will launch a fund with its partners investing some of their own money. This group of executives (general partners) is responsible for managing the fund. The fund will also raise cash from outside investors (limited partners). Large institutional investors tend to be the main investors in private funds. Globally, insurance companies and pension funds (ICPFs) account for close to 75% of investments into private equity funds and around 86% into private credit funds.⁸³ General partners and limited partners may borrow money to finance their commitments to the fund, using their existing stakes in other funds as collateral (Figure 13).⁸⁴

Unlike other investment funds, private equity firms usually acquire majority stakes in companies with the intention of influencing or exercising control over their strategic, financial, and operational management. These acquisitions are usually financed with a combination of own funds and a significant amount of debt.⁸⁵ Debt funding is usually provided by one or several banks in the form of a leveraged loan, which is secured against the assets of the target company and a pledge on the target company's shares. The target company's cash flow is used to pay back the loan over time, usually over a period of five to eight years.

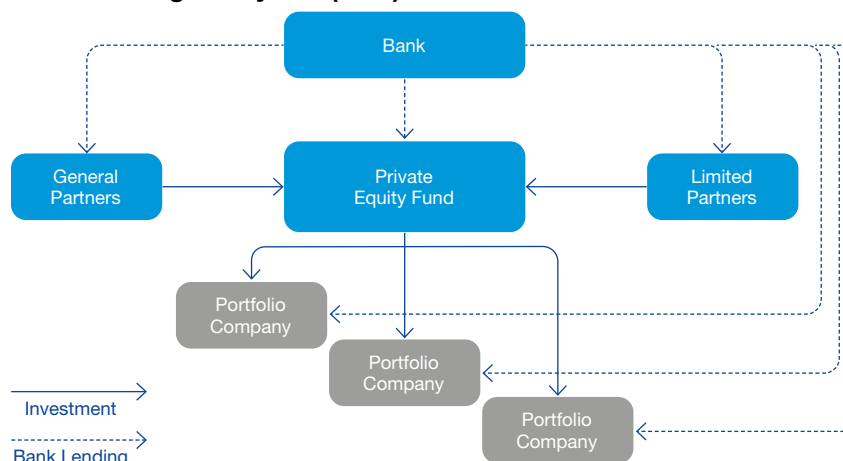
Even before cash subscriptions from the fund's limited partners are collected, money from limited partners is used as security for a subscription line from the bank, which is used as short-term financing to acquire companies. This type of borrowing reached USD 900 bn in 2023.⁸⁶ While the subscription line helps fund part of the deal, it is primarily supported by debt financing from banks, usually in the form of term loans. In larger transactions, these leveraged loans may be shared (syndicated) between several banks, usually with one or two banks taking the lead. Banks will usually attempt to sell on some or all of these loans to other buyers, such as private credit and hedge funds. If the secondary market for leveraged loans dries up, which tends to be the case in an economic downturn, banks may be forced to keep them on their balance sheets and may incur losses if the highly indebted portfolio company's ability to service its debt deteriorates.

⁸³ Aramonte, S. / Avalos, F., The Rise of Private Markets, Bank for International Settlements (BIS) Quarterly Review (December 2021), pgs. 69-82.

⁸⁴ Aliaj, O. et al., How Private Equity Tangled Banks in a Web of Debt.

⁸⁵ The European Central Bank (ECB) defines a "leveraged transaction" as a transaction where the borrower's post-financing ratio of total debt to Earnings before Interest, Tax, Depreciation and Amortisation (EBITDA) exceeds four times. European Central Bank (ECB), Guidance on Leveraged Transactions, May 2017, pg. 4.

⁸⁶ Aliaj, O. et al., How Private Equity Tangled Banks in a Web of Debt.

Figure 13: Leveraged buy-out (LBO) fund

Source: Financial Times (2024)

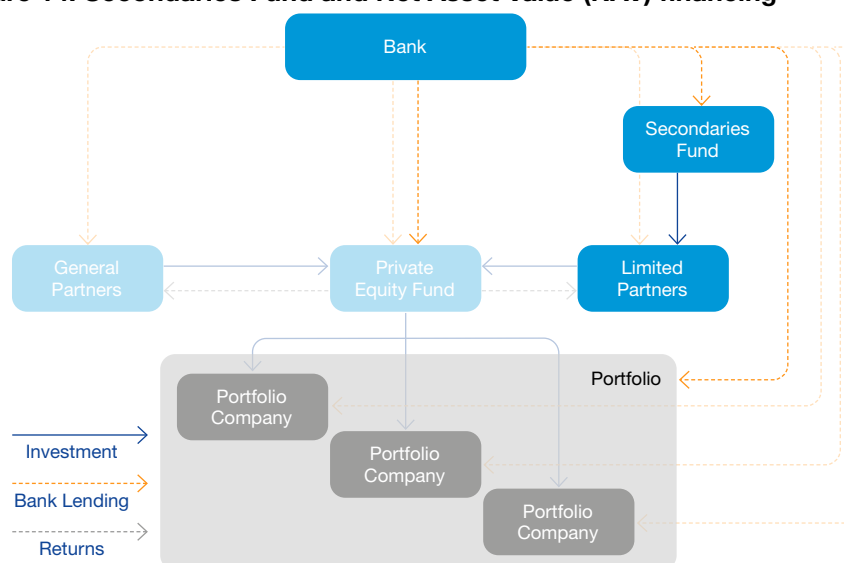
Secondaries and net-asset value (NAV) financing

The economics of LBO transactions are heavily dependent on active markets for selling and listing companies, the two of the main avenues through which a fund can exit an investment and return cash to investors. In recent years, activity in these markets has been uneven and sometimes very subdued for extended periods of time. This has led to the growth of specialist funds (*secondaries funds*), often launched by private equity firms themselves, that buy up private equity stakes, usually from limited partners looking to liquidate all or part of their stakes. To finance the purchase of these stakes, secondaries funds raise money from limited partners and combine it with their own cash and debt from banks, adding another layer of debt.⁸⁷

To fund distributions to limited partners, funds have other options as well. They may instruct their portfolio companies to take on more debt, which is used to fund distributions to investors (*dividend recapitalisation*). They may also borrow from banks by using their stakes in portfolio companies as underlying collateral (**net asset value financing**). The proceeds may be used to bail out a struggling business or to fund a payout to investors. Net asset value loans have raised concerns because the fund's stake in the company acts as underlying collateral, but the company is already leveraged, hence the term *leverage on leverage*. If things go wrong, net asset value loans can spread risk usually limited to one company across the whole fund. Net asset value lending was estimated to be worth ca. USD 100 bn last year.⁸⁸

⁸⁷ Aliaj, O. et al., How Private Equity Tangled Banks in a Web of Debt.

⁸⁸ *ibid.*

Figure 14: Secondaries Fund and Net Asset Value (NAV) financing

Source: Financial Times (2024)

Complicating matters further, specialist players known as **general partner stakes funds** can buy a share in a private equity firm from its executives. These funds can also borrow money from banks secured by management fees and carried interest income – a share of the overall profits of a private equity fund.

Private credit funds

But it is not just banks that service the private equity industry. Private credit funds have been on the rise in recent years, with assets topping **USD 1.7 trn**. They compete with banks to meet private equity's funding needs, lending to individual funds as well as their portfolio companies. Private credit funds also use subscription lines from banks to finance their lending activities. There is little transparency or liquidity in the private credit market, which has made regulators nervous that an economic shock could leave banks exposed.⁸⁹ Recent events in the U.S., especially the bankruptcies of two highly leveraged private companies, First Brands Group and Tricolor Holdings, have further raised regulators' and supervisors' concerns about lending practices and the quality of credit risk assessment in the private debt markets.⁹⁰

Much of this lending is ultimately underpinned by the financial health of a fund's portfolio companies. Yet every transaction ends up adding more leverage to heavily indebted businesses, which can make them more vulnerable in a downturn. The only people with a birds-eye view of the total borrowing across a firm, its funds and their portfolio companies are the general partners. Not even the banks, which may be exposed to the same borrowers on multiple levels, may have a complete picture of

⁸⁹ Aliaj, O. et al., How Private Equity Tangled Banks in a Web of Debt.

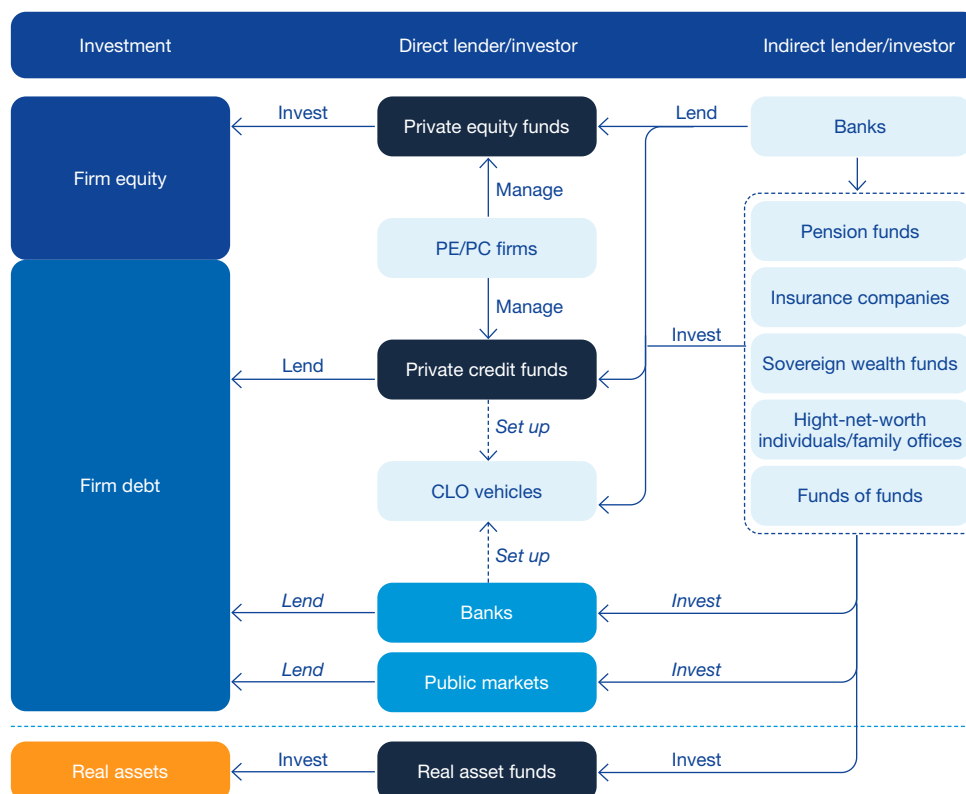
⁹⁰ Aliaj, O. / Smith, R., JPMorgan Warns First Brands Fallout Driving Up Banks' Funding Costs, Financial Times, 20 October 2025.

their aggregate exposure. Different types of lending are led by different teams within a bank, and often different banks altogether.

Risks and regulation

Private equity and debt funds interact with the banking sector on multiple levels. Interconnectedness and hidden leverage consistently resurface as the main concerns among regulators.

Figure 15: Banking sector linkages with private equity / debt funds



Source: European Central Bank (ECB) (2024)

The most widely shared concern with regard to private equity and private debt funds is about **hidden leverage**. The lack of transparency has regulators worried about whether banks themselves really know just how exposed they are. The Bank of England official responsible for financial stability strategy and risk, Nathanaël Benjamin, cautioned in April 2025 that there were “natural questions about the risks of these financing arrangements, and the growth in kinds and quantity of leverage, or ‘leverage on leverage’, throughout the ecosystem”. In its May 2024 Financial Stability Review, the European Central Bank (ECB) said that private equity and debt markets had an “opaqueness and uncertain resilience” that was a source of concern.⁹¹

⁹¹ *ibid.*

The debt that ties private equity in with the banks and other NBFIs means that any stress in the industry could ripple across the wider financial system. “The opacity, complexity, and interconnectedness of the sector have made assessing its developments difficult, but it also means that it is all the more important,” Benjamin added. “These developments could pose risks to financial stability.”⁹²

Until recently, the AIFMD did not impose any statutory leverage limits. As part of its latest review, however, in April 2024, the EU co-legislators introduced both a new designation of *loan-originating AIFs* and a leverage limit specifically for this category of funds. This still leaves private equity funds and their multiple layers of debt unaddressed. The option for competent authorities to impose leverage limits under Art. 25(3) of the AIFMD, if leverage levels of AIFs are thought to jeopardise financial stability, may not be of much use in the case of private equity funds given that two thirds of banks’ total exposures are not directly with the funds themselves (Figure 15) and leverage at the level of the portfolio companies is expressly excluded by virtue of Recital 78 of the AIFMD.

92 Aliaj, O. / Gara., A. / Platt, E., Blackstone Snaps up ‘Circular’ Private Equity Credit Risk.

Conclusion

This report has attempted to outline some of the myriad players and activities that constitute the NBFI sector. This is not the end of this journey into *shadow banking*, however. A forthcoming publication will look in more detail at the risks that the growth of NBFI, and attendant gaps in regulation and supervision, may pose to financial stability.

The term «non-bank financial intermediation» (NBFI), which has been promoted as a replacement for “shadow banking” obscures the fact that banks remain central to the origination and intermediation of credit in most NBFI activities. NBFI should not be viewed as a competitive challenge to banks, but rather as a result of banks optimising balance sheets and reducing regulatory capital requirements through regulatory arbitrage. Many NBFI structures aim to transfer risk from the banking sector to less regulated and less transparent parts of the financial market, raising concerns about systemic risks.

Despite recognising systemic risk in the banking sector, the scale and impact of systemic risk in the non-bank sector have not been adequately addressed, with a prevailing belief that global capital markets can absorb almost any financial risk. This belief is increasingly outdated. NBFI structures are complex, requiring highly specialised players, which could give rise to concentration risk, transparency issues, potential misconduct and market abuse. Some NBFI structures involve circular risk, where risks transferred to other market participants ultimately return to the banking sector, a phenomenon that is not fully understood or quantified.

The complexity of NBFI leads to regulatory gaps. Credit origination and intermediation that takes place outside banking prudential frameworks should be subject to equivalent regulatory oversight across sectors to manage systemic risks effectively. Macroprudential policies must not be limited by sectoral boundaries, as systemic risks can easily flow across them.

Finance Watch plans to explore systemic risk in NBFI further in a future publication, but it is clear that banking and NBFI often cooperate, rather than compete, to take advantage of regulatory boundaries and maximise profitability.

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, tranching 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 <i>non-neutrality</i> , by applying higher capital requirements for structured (tranch) 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. Herding 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 <i>option premium</i> ; (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.
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 (<i>face value</i>) 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 (<i>risk weight</i>) 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 (<i>covered short</i>) or wait until the agreed date of delivery to purchase the asset at the then-prevailing market price (<i>naked short</i>).
SIV	Structured Investment Vehicle. A type of special-purpose vehicle (→ SPV), usually established by a financial institution in a low-tax <i>off-shore</i> 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 (<i>maturity transformation</i>).
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 <i>off-shore</i> 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.

Bibliography

Acharya, V.V. / Schnabl, P. / Suarez, G., Securitisation Without Risk Transfer, National Bureau of Economic Research (NBER) Working Paper No. 15730, February 2010 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1508146).

Admati, A. / Hellwig, M., The Bankers' New Clothes: What's Wrong with Banking and What to Do About It, 2nd ed., Princeton University Press (2024).

Adrian, T. / Chrétien, E. / Chui, M. / de Vries-van Ewijk, S. / Fricke, C. / Fricke, D. / Honkapohja, S. / Li, J. / Lyonnet, V. / Maes, S. / Morganti, P. / Nouy, D. / Nuzzo, G. / Rubio, M. / Suhonen, A. / Upper, C. / Voellmy, L. / Zafeiris, D., in Jokivuolle, E. (ed.), Shadow Banking: Financial Intermediation Beyond Banks, Société Universitaire Européenne de Recherches Financières (SUEF) Conference Proceedings 2018/1, May 2018. (https://www.suerf.org/wp-content/uploads/2023/11/s_f5cfbc876972bd0d031c8abc37344c28_6951_suerf.pdf).

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).

Aldasoro, I. / Ehlers, T., The Credit Default Swap Market: What a Difference a Decade Makes, Bank for International Settlements (BIS), BIS Quarterly Review (June 2018), pgs. 1-11 (https://www.bis.org/publ/qtrpdf/r_qt1806.pdf).

Aliaj, O., Defaults on Leveraged Loans Soar as BoE Warns on Private Equity's 'Challenges', Financial Times, 27 June 2024 (<https://www.ft.com/content/680abec2-26a7-4895-a248-0d7c17b9072f>).

Aliaj, O. / Learner, S. / de la Torre Arenas, I. / Joiner, S. / Louch, W. / Wiggins, K., How Private Equity Tangled Banks in a Web of Debt, Financial Times, 24 July 2024 (<https://ig.ft.com/private-equity/>).

Aliaj, O. / Gara, A. / Platt, E., Blackstone Snaps up 'Circular' Private Equity Credit Risk, Financial Times, 03 July 2024 (<https://www.ft.com/content/334fca10-f99d-4798-970a-6c160f5bf36c>).

Aliaj, O. / Smith, R., JPMorgan Warns First Brands Fallout Driving Up Banks' Funding Costs, Financial Times, 20 October 2025 (<https://www.ft.com/content/0fb77ee9-622c-4cf1-bd77-8dd75d196b36>).

Alvarez & Marsal, How Banks Are Using Capital Velocity to Improve Capital Efficiency and Profitability, Financial Services Industry Group – Client Note, August 2024 (https://www.alvarezandmarsal.com/sites/default/files/2024-08/A%26M_FSI_EU_Capital_Velocity_Teaser_FT_Report.pdf).

Aramonte, S. / Avalos, F., The Rise of Private Markets, Bank for International Settlements (BIS) Quarterly Review (December 2021), pgs. 69-82 (https://www.bis.org/publ/qtrpdf/r_qt2112e.pdf).

Association for Financial Markets in Europe (AFME), Securitisation Data Report: Q4 2024 & 2024 FY. European Structured Finance, 06 March 2025 (<https://www.afme.eu/publications/data-research/details/securitisation-data-report-q4-2024--2024-full-year>).

Avalos, F. / Doerr, S. / Pinter, G., The Global Drivers of Private Credit, Bank for International Settlements (BIS) Quarterly Review (March 2025), pgs. 13-30 (https://www.bis.org/publ/qtrpdf/r_qt2503b.pdf).

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 (<https://www.sciencedirect.com/science/article/pii/S1572308925000324>).

Banking Policy Institute (bpi), Synthetic Risk Transfer Issue Summary, 10 September 2024 (<https://bpi.com/synthetic-risk-transfer-issue-summary/>).

Bank of England, Financial Stability Report, Issue No. 34, November 2013 (<https://www.bankofengland.co.uk/-/media/boe/files/financial-stability-report/2013/november-2013.pdf>).

Barbieri, C. / Grodzicki, M. / Hataj, G. / Pizzeghello, R., System-wide Implications of Counterparty Credit Risk, European Central Bank (ECB) Macroprudential Bulletin No. 26, January 2025 (https://www.ecb.europa.eu/press/financial-stability-publications/macroprudential-bulletin/html/ecb.mpbu202501_05~3ab38fdc0c.en.html).

Basel Committee on Banking Supervision (BCBS), Literature Review on Integration of Regulatory Capital and Liquidity Instruments, Working Paper No. 30, March 2016 (<https://www.bis.org/bcbs/publ/wp30.pdf>).

Basel Committee on Banking Supervision (BCBS), Explanatory Note on the Minimum Capital Requirements for Market Risk, January 2019.

Bebchuck, L.A. / Weisbach, M.S., The State of Corporate Governance Research, Review of Financial Studies, vol. 23/3 (2010), pgs. 939-961 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1508146).

Bell, I. / Bennett, M. / Duponchee, G. / Joulia-Paris, T. / Ormezzano, V., The Increasing and Stabilising Role of (Re)Insurance Companies in Providing Credit Protection: An Analysis Across Key Jurisdictions, International Association of Credit Portfolio Managers (IACPM), 02 May 2025 (<https://iacpm.org/wp-content/uploads/2025/05/20250502-Strengthening-Financial-Stability-through-Insurance-based-Credit-Risk-Transfer-v54bis-FINAL.pdf>).

BlackRock, Comments on the Consultative Document (2nd) Assessment Methodologies for Identifying Non-Bank Non-Insurer Globally Systemically Important Financial Institutions, 29 May 2015 (<https://www.fsb.org/uploads/BlackRock.pdf>).

Breyer, P. / Girsch, S. / Hübler, M. / Nanista, N. / Wittig, E., Private Credit – The De-Banking of Lending, Oesterreichische Nationalbank (OeNB) Report 2024/20, November 2024 (<https://www.oenb.at/Publikationen/Volkswirtschaft/reports/2024/report-2024-20-private-credit.html>).

Brumm, J. / Grill, M. / Kübler, F. / Schmedders, K., Re-use of Collateral: Leverage, Volatility, and Welfare, ECB Working Paper Series No 2218, December 2018 (<https://www.ecb.europa.eu/pub/pdf/scpwps/ecb.wp2218.en.pdf>).

Brunnermeier, M. K., The Resilient Society, Endeavour Litbury Press (2021).

Bouveret, A. / Danieli, L., Vulnerabilities in Money Market Funds, European Securities and Markets Authority (ESMA) Trends Risks and Vulnerabilities No. 01, January 2021, pgs. 60-72 (https://www.esma.europa.eu/sites/default/files/trv_2021_1-vulnerabilities_in_money_market_funds.pdf).

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 (https://www.ecb.europa.eu/press/financial-stability-publications/macroprudential-bulletin/html/ecb.mpbu202501_02~1955080e3a.en.html).

Buch, C., Hidden Leverage and Blind Spots: Addressing Banks' Exposures to Private Market Funds, European Central Bank (ECB) – The Supervision Blog, 03 June 2025 (<https://www.bankingsupervision.europa.eu/press/blog/2025/html/ssm.blog20250603~7af4fc2d7.en.html>).

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>).

Chen, R. / Kemp, E., Lessons from the United Kingdom's Liability-Driven Investment (LDI) Crisis, International Monetary Fund (IMF) Selected Issues Paper No. 2023/049, 13 July 2023 (<https://www.imf.org/en/Publications/selected-issues-papers/Issues/2023/07/13/>).

Lessons-from-the-United-Kingdoms-Liability-Driven-Investment-LDI-Crisis-United-Kingdom-536314).

Claessens, S. / Pozsar, Z. / Ratnovski, L. / Singh, M., Shadow Banking: Economics and Policy, International Monetary Fund (IMF) Staff Discussion Note SDN/12/12, December 2012 (<https://www.imf.org/external/pubs/ft/sdn/2012/sdn1212.pdf>).

Cline, W.R., Testing the Modigliani-Miller Theorem of Capital Structure Irrelevance for Banks, Peterson Institute for International Economics (PIIE) Working Paper Series No. 15-8, April 2015 (<https://www.piie.com/sites/default/files/publications/wp/wp15-8.pdf>).

Debreu, G., Excess Demand Functions, Journal of Mathematical Economics, vol. 1/1 (1974), pgs, 15-21.

Diamond, D.W. / Dybvig, P.H., Bank Runs, Deposit Insurance, and Liquidity, Journal of Political Economy, University of Chicago Press, vol. 91/3 (1983), pgs. 401-419.

European Banking Authority (EBA), Report to the European Commission on the Perimeter of Credit Institutions Established in the Member States, 27 November 2014 (https://www.eba.europa.eu/sites/default/files/documents/10180/534414/6bbabcef-ac51-48b8-a4fb-45dfd483e486/2014_11_27_-_EBA_Report_-_Credit_institutions.pdf).

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 (<https://www.eba.europa.eu/sites/default/files/2025-04/bb3edcf5-1fda-4ace-8e17-f6bd3f8a5a01/Report-on-EU-banks-funding-structure-and-their-dependence-on-foreign-currency-funding.pdf>).

European Central Bank (ECB), Hedge Funds: Developments and Policy Implications, ECB Monthly Bulletin, January 2006 (https://www.ecb.europa.eu/pub/pdf/other/pp63-76_mmb200601en.pdf).

European Central Bank (ECB), Guidance on Leveraged Transactions, May 2017 (https://www.bankingsupervision.europa.eu/ecb/pub/pdf/ssm.leveraged_transactions_guidance_201705.en.pdf).

European Central Bank (ECB), Lists of Financial Institutions: Investment Funds (IFs). Definitions of Attributes on the IFs List, 13 March 2023 (<https://www.ecb.europa.eu/stats/pdf/money/definitionsattributesonthelFlisten201810.pdf>).

European Central Bank (ECB), Non-Bank Financial Intermediation in the Euro Area: Implications for Monetary Policy Transmission and Key Vulnerabilities, ECB Occasional Paper Series No 270 (revised), December 2021 (<https://www.ecb.europa.eu/pub/pdf/scpops/ecb.op270~36f79cd-6ca.en.pdf>).

European Central Bank, Financial Stability Report, May 2025 (<https://www.ecb.europa.eu/pub/pdf/fsr/ecb.fsr202505~0cde5244f6.en.pdf>).

European Commission, High-Level Expert Group on Reforming the Structure of the EU Banking Sector. Final Report, 02 October 2012 (https://finance.ec.europa.eu/publications/liikanen-report_en).

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.

European Commission, European Commission, Targeted Consultation on Improving the EU's Macroprudential Framework for the Banking Sector, 30 November 2021 (https://finance.ec.europa.eu/document/download/7b99c2ff-fccd-4264-8335-b864ae2d94ff_en?file-name=2021-banking-macroprudential-framework-consultation-document_en.pdf).

European Commission, Report from the Commission to the European Parliament and the Council on the Macroprudential Review for Credit Institutions, the Systemic Risks relating to Non-Bank Financial Intermediaries (NBFIs) and their Interconnectedness with Credit institutions, COM (2024) 21 final, 24 January 2024 (<https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52024DC0021>).

European Commission, Targeted Consultation Document: Assessing the Adequacy of Macroprudential Policies for Non-Bank Financial Intermediation (NBF), 22 May 2024 (https://finance.ec.europa.eu/document/download/ddd6c515-3796-4db3-b91d-88a1a64acf07_en?filename=2024-non-bank-financial-intermediation-consultation-document_en.pdf).

European Commission, Targeted Consultation on the Adequacy of Macroprudential Policies for Non-Bank Financial Intermediation (NBF). Summary Report, 14 March 2025 (https://finance.ec.europa.eu/document/download/db0e482b-12b8-43d5-ad8d-b54e6af4b315_en?filename=2024-non-bank-financial-intermediation-summary-of-responses_en.pdf).

European Financial Stability Board (ESRB), Issues Note on Policy Options to Address Risks in Corporate Debt and Real Estate Investment Funds from a Financial Stability Perspective, September 2023 (<https://www.esrb.europa.eu/pub/pdf/reports/esrb.issuesnotepolicyoptions-risksinvestmentfunds202309~cf3985b4e2.en.pdf>).

European Fund and Asset Management Association (EFAMA), Asset Management in Europe: An Overview of the Asset Management Industry, 16th ed., December 2024 (https://www.efama.org/sites/default/files/files/asset-management-report-2024_0.pdf).

European Fund and Asset Management Association (EFAMA), Fact Book 2025, 24 June 2025 (<https://www.efama.org/data-research/research/fact-book>).

European Securities and Markets Authority (ESMA), Leverage and Derivatives – The Case of Archegos, ESMA 50-165-2096, May 2022 (https://www.esma.europa.eu/sites/default/files/library/esma50-165-2096_leverage_and_derivatives_the_case_of_archegos.pdf).

European Securities and Markets Authority (ESMA), The EU Securitisation Market – An Overview, ESMA50-524821-2908, 21 September 2023 (https://www.esma.europa.eu/sites/default/files/2023-09/ESMA50-524821-2908_TRV_risk_analysis_-_EU_securitisation_markets_overview.pdf).

European Securities and Markets Authority (ESMA), EU Securities Financing Transactions Markets 2024, ESMA50-524821-3147, 09 April 2024 (https://www.esma.europa.eu/sites/default/files/2024-04/ESMA50-524821-3147_EU_Securities_Financing_Transactions_markets_2024.pdf).

European Securities and Markets Authority (ESMA), Risks in UCITS Using the Absolute Value-at-Risk Approach, ESMA50-524821-3660, 24 April 2025 (https://www.esma.europa.eu/sites/default/files/2025-04/ESMA50-524821-3660_Risks_in_UCITS_investment_funds_using_the_absolute_Value-at-Risk_approach.pdf).

European Securities and Markets Authority (ESMA), Discussion Paper on the Integrated Collection of Funds' Data, ESMA 12-2121844265-4904, 23 June 2025 (https://www.esma.europa.eu/sites/default/files/2025-06/ESMA12-2121844265-4904_DP_on_integrated_reporting.pdf).

European Securities and Markets Authority (ESMA), Final Report: Technical Advice to the European Commission on the Review of the UCITS Eligible Assets Directive, ESMA34-2087785638-1548, 26 June 2025 (https://www.esma.europa.eu/sites/default/files/2025-06/ESMA34-2087785638-1548_Final_report_on_the_Technical_Advice_on_the_review_of_the_UCITS_EAD.pdf).

European Systemic Risk Board (ESRB), ESRB Opinion to ESMA on Securities Financing Transactions and Leverage under Article 29 of the SFTR, October 2016 (https://www.esrb.europa.eu/pub/pdf/other/20161004_esrbopinion.en.pdf).

European Systemic Risk Board (ESRB), EU Non-Bank Financial Intermediation Risk Monitor (NBFi Monitor) No 9, June 2024 (https://www.esrb.europa.eu/pub/pdf/reports/nbf_monitor/esrb.nbf202406~2e211b2f80.en.pdf).

European Systemic Risk Board (ESRB), Unveiling the Impact of STS on-Balance-Sheet Securitisation on EU Financial Stability, May 2025 (https://www.esrb.europa.eu/pub/pdf/reports/esrb_report202505_syntheticSTSsecuritisation.en.pdf?6c3885349149fe9b6edb268d98d24490).

European Systemic Risk Board (ESRB), Recommendation on Liquidity Risks arising from Margin Calls, ESRB/2020/06, 25 May 2020 (https://www.esrb.europa.eu/pub/pdf/recommendations/esrb.recommendation200608_on_liquidity_risks_arising_from_margin_calls~41c70f16b2.en.pdf).

Fama, E.F., Efficient Capital Markets: A Review of Theory and Empirical Work, The Journal of Finance, vol. 25/2 (1970), Papers and Proceedings of the 28th Annual Meeting of the American Finance Association New York, N.Y. December, 28-30, 1969, pgs. 383-417.

Finance Watch, Improving the EU Macroprudential Framework for the Banking Sector. Response to the European Commission's Targeted Consultation on Improving the EU Macroprudential Framework for the Banking Sector, 18 March 2022 (https://www.finance-watch.org/wp-content/uploads/2022/03/FW_Macroprudential-Framework-Response_final.pdf).

Financial Stability Board (FSB), Shadow Banking: Strengthening Oversight and Regulation. Recommendations of the Financial Stability Board, 27 October 2011 (https://www.fsb.org/uploads/r_111027a.pdf).

Financial Stability Board (FSB), Strengthening Oversight and Regulation of Shadow Banking. An Overview of Policy Recommendations, 29 August 2013 (<https://www.fsb.org/2013/08/an-overview-of-policy-recommendations-for-shadow-banking/>).

Financial Stability Board (FSB), Consultative Document: Assessment Methodologies for Identifying Non-Bank Non-Insurer Global Systemically Important Financial Institutions. Proposed High-Level Framework and Specific Methodologies, 08 January 2014 (https://www.fsb.org/2014/01/r_140108-2/).

Financial Stability Board (FSB), Strengthening Oversight and Regulation of Shadow Banking. Regulatory Framework for Haircuts on Non-Centrally Cleared Securities Financing Transactions, 14 October 2014 (https://www.fsb.org/2014/10/r_141013a/).

Financial Stability Board (FSB), Consultative Document (2nd): Assessment Methodologies for Identifying Non-Bank Non-Insurer Global Systemically Important Financial Institutions. Proposed High-Level Framework and Specific Methodologies, 04 March 2015 (<https://www.fsb.org/2015/03/assessment-methodologies-for-identifying-non-bank-non-insurer-global-systemically-important-financial-institutions/>).

Financial Stability Board (FSB), Next Steps on the NBNI G-SIFI Assessment Methodologies, 30 July 2015 (<https://www.fsb.org/2015/07/next-steps-on-the-nbni-g-sifi-assessment-methodologies/>).

Financial Stability Board (FSB), Transforming Shadow Banking into Resilient Market-Based Finance: Regulatory Framework for Haircuts on Non-Centrally Cleared Securities Financing Transactions (updated), 07 September 2020 (https://www.fsb.org/uploads/SFT_haircuts_framework.pdf).

Financial Stability Board (FSB), Policy Proposals to Enhance Money Market Fund Resilience. Final Report, 11 October 2021 (<https://www.fsb.org/uploads/P111021-2.pdf>).

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 (<https://www.fsb.org/2022/12/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/).

Financial Stability Board (FSB), The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation, 06 September 2023 (<https://www.fsb.org/2023/09/the-financial-stability-implications-of-leverage-in-non-bank-financial-intermediation/>).

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 (<https://www.fsb.org/2023/12/final-report-on-enhancing-third-party-risk-management-and-oversight-a-toolkit-for-financial-institutions-and-financial-authorities/>).

Financial Stability Board (FSB), Enhancing the Resilience of Non-Bank Financial Intermediation: Progress Report, 22 July 2024 (<https://www.fsb.org/2024/07/enhancing-the-resilience-of-non-bank-financial-intermediation-progress-report-4/>).

Financial Stability Board (FSB), Thematic Review on Money Market Fund Reforms. Peer Review Report, 27 February 2024 (<https://www.fsb.org/uploads/P270224.pdf>).

Financial Stability Board (FSB), Global Monitoring Report on Non-Bank Financial Intermediation 2024, 16 December 2024 (<https://www.fsb.org/2024/12/global-monitoring-report-on-non-bank-financial-intermediation-2024/>).

Financial Stability Board (FSB), Leverage in Non-Bank Financial Intermediation. Consultation Report, 18 December 2024 (<https://www.fsb.org/2024/12/leverage-in-non-bank-financial-intermediation-consultation-report/>).

Financial Stability Board (FSB), Evaluation of the Effects of the G20 Financial Regulatory Reforms on Securitisation. Final Report, 22 January 2025 (<https://www.fsb.org/uploads/P220125-1.pdf>).

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 (<https://www.fsb.org/2025/06/how-is-the-water-continuing-our-work-to-preserve-financial-stability/>).

Financial Stability Board (FSB), Leverage in Non-Bank Financial Intermediation. Final Report, 09 July 2025 (<https://www.fsb.org/2025/07/leverage-in-nonbank-financial-intermediation-final-report/>).

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 (https://www.bankingsupervision.europa.eu/press/supervisory-newsletters/newsletter/2024/html/ssm.nl241113_3.en.html).

Garavito, F. / Lewrick, U. / Stastny, T. / Todorov, K., Shifting Landscapes: Life Insurance and Financial Stability, Bank for International Settlements (BIS) Quarterly Review, September 2024, pgs. 21-34 (https://www.bis.org/publ/qtrpdf/r_qt2409b.pdf).

Gompers, P.A. / Metrick, A., Institutional Investors and Equity Prices, Quarterly Journal of Economics, vol. 116/1 (2001), pgs. 229-259 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=93660).

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 (<https://www.esrb.europa.eu/pub/pdf/occasional/esrb.op23~07d5c3eef2.en.pdf>).

Gorton, G. / Metrick, A., Regulating the Shadow Banking System, Brookings Papers on Economic Activity (02/2010), pgs. 261-312 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1676947).

Gorton, G. / Metrick, A., Securitised Banking and the Run on Repo, Journal of

Financial Economics, vol. 104/3 (2012), pgs. 425-451 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1440752).

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 (https://www.ecb.europa.eu/press/financial-stability-publications/macprudential-bulletin/html/ecb.mpbu202201_1~218b65d720.en.html).

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 (https://www.ecb.europa.eu/press/financial-stability-publications/macprudential-bulletin/html/ecb.mpbu202501_04~7a38c991f0.en.html).

Hache, F., A Missed Opportunity to Revive 'Boring' Finance? A Position Paper on the Long Term Financing Initiative, Good Securitisation and Securities Financing, Finance Watch Report, December 2014 (<https://www.finance-watch.org/wp-content/uploads/2018/08/FW-report-LTF-dec-2014.pdf>).

International Capital Market Association (ICMA), European Repo Market Survey No. 48 (December 2024), April 2025 (<https://www.icmagroup.org/assets/documents/Regulatory/Repo/Surveys/ICMA-European-Repo-Market-Survey-Number-48-Conducted-December-2024-Published-April-2025-090425.pdf>).

International Monetary Fund (IMF), Global Financial Stability Report: Navigating the High-Inflation Environment, October 2022 (<https://www.imf.org/en/Publications/GFSR/Issues/2022/10/11/global-financial-stability-report-october-2022>).

International Monetary Fund (IMF), Global Financial Stability Report: Enhancing Resilience Among Uncertainty, April 2025 (<https://www.imf.org/en/Publications/GFSR/Issues/2025/04/22/global-financial-stability-report-april-2025>).

International Swaps and Derivatives Association (ISDA), Credit Derivatives Trading Activity Reported in EU, UK and US Markets: First Quarter of 2025, July 2025 (<https://www.isda.org/a/LmjgE/Credit-Derivatives-Trading-Activity-Reported-in-EU-UK-and-US-Markets-First-Quarter-of-2025.pdf>).

Joint Committee of the European Supervisory Authorities (JC ESA), Joint Committee Advice on the Review of the Securitisation Prudential Framework (Banking), JC/2022/66, 12 December 2022 (https://www.eba.europa.eu/sites/default/files/document_library/Publications/Other_publications/2022/Joint_advice_to_the_EU_Commission_on_the_review_of_the_securitisation_prudential_framework/1045321/JC_2022_66_-_JC_Advice_on_the_review_of_the_securitisation_prudential_framework_-_Banking.pdf).

Joint Committee of the European Financial Supervisory Authorities, 2023 Stocktaking of BigTech Direct Financial Services Provision in the EU, 01 February 2024 (https://www.esma.europa.eu/sites/default/files/2024-02/JC_2024_02_Joint_ESAs_Report_on_2023_stocktaking_of_BigTech_direct_financial_services_provision.pdf).

Joint Committee of the European Financial Supervisory Authorities, Joint Committee Update on Risks and Vulnerabilities in the EU Financial System (Spring 2025), 27/28 March 2025 (<https://www.esma.europa.eu/document/joint-committee-update-risks-and-vulnerabilities-eu-financial-system-spring-2025>).

KPMG (UK), Securitisation and Balance Sheet Optimisation, May 2025 (<https://assets.kpmg.com/content/dam/kpmgsites/uk/pdf/2025/06/securitisation-balance-sheet-optimisation.pdf.coredownload.inline.pdf>).

KPMG (UK), Ring-Fencing Reform: Lowering the Barriers? Potential Impacts for the UK Banking Market, 03 June 2025 (<https://kpmg.com/xx/en/our-insights/regulatory-insights/ring-fencing-reform-lowering-the-barriers.html>).

Kress, J.C., The Last SIFI: The Unwise and Illegal Deregulation of Prudential Financial, *Stanford Law Review*, vol. 71 (2018), pgs. 171-182 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3278730).

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 (http://www.oenb.at/dam/jcr:acd3e546-07c4-45cb-82ca-86725ac79523/fsr_30_special-topics01.pdf).

Lindo, D., The Importance of Being Separated. Making the Public Interest Sovereign over Banks, Finance Watch Policy Note, 08 April 2013 (<http://finance-watch.org/iframe/Publications/Reports/The-importance-of-separation-8-April-2013.pdf>).

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 (https://www.finance-watch.org/wp-content/uploads/2018/08/Europes_banking_trilemma_Finance_Watch.pdf).

Mack, S., Out of the Shadow: A Macro-Prudential Framework for NBFi in the EU, Jacques Delors Centre Policy Paper, Hertie School, 12 December 2024 (<https://www.delorscentre.eu/en/publications/detail/publication/a-macro-prudential-framework-for-nbfi-in-the-eu>).

McKinsey & Company, Global Private Markets Report 2025: Braced for Shifting Weather, 20 May 2025 (https://www.mckinsey.com/industries/private-capital/our-insights/global-private-markets-report#).

Montagner, P., Stronger Together, Separately Strong: ECB Expectations for Financial Conglomerates. Speech at the Meeting of the Pan-European Conglomerate Club, Frankfurt, 13 June 2025 (<https://www.bankingsupervision.europa.eu/press/speeches/date/2025/html/ssm.sp250613~ea44cad9f2.en.html>).

Muñoz, D.R., Shadow Banking: Current Headaches, Old Problems?, Instituto de Estudios Financieros (IEF) Working Paper No. 54, October 2024 (https://www.iefweb.org/wp-content/uploads/2024/11/DT-54_Shadow-Banking_v2.pdf).

Nangle, T., Inside the Private Equity-Insurance Nexus. When the World's Dullest Industry Gets Very Exciting, *Financial Times*, 27 June 2025 (<https://www.ft.com/content/ee40241a-c568-4673-88df-001c0244fb37>).

Noonan, L. / Smith, I. / Louch, W., Bank of England Warns of Risks to UK Businesses from Private Equity Bubble, 27 March 2024 (<https://www.ft.com/content/7fbc3d7e-7c3c-4724-a438-ec21f8eaa220>).

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 (<https://www.bankingsupervision.europa.eu/press/speeches/date/2017/html/ssm.sp170915.en.html>).

Persaud, A., Sending the Herd Off the Cliff Edge: The Disturbing Interaction Between Herding and Market-Sensitive Risk Management Practices, in: Bank for International Settlements (ed.), *Market Liquidity: BIS Workshop Proceedings* (vol. 2), April 2001, pgs. 233-240 (<https://www.bis.org/publ/bppdf/bispap02.pdf>).

Rajan, R., Has Financial Development Made the World Riskier?, National Bureau of Economic Research Working Paper No. 11728, November 2005, (<https://www.nber.org/papers/w11728>).

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

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>).

Sandel, M.J., What Money Can't Buy: The Moral Limits of Markets, Farrar, Strauss & Giroux (2012).

Schwarcz, S.L., Regulating Shadow Banking, Review of Banking and Financial Law, vol. 31/1 (2012), pgs. 619-642 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1993185).

Shiller, R.J., Investor Behavior in the October 1987 Stock Market Crash: Survey Evidence, NBER Working Paper No. 2446, November 1987 (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=227115).

Shiller, R.J., From Efficient Markets Theory to Behavioral Finance, Journal of Economic Perspectives, vol. 17/1 (2003), pgs. 83-104; (https://papers.ssrn.com/sol3/papers.cfm?abstract_id=349660).

Shleifer, A., Inefficient Markets: An Introduction to Behavioral Finance, Oxford University Press (2000).

Singh, M., The Economics of Shadow Banking, Reserve Bank of Australia Annual Conference Volume 2013, 19-20 August 2013, pgs. 5-28 (<https://www.rba.gov.au/publications/confs/2013/pdf/singh.pdf>).

Slaughter & May, First-Time Originator's Guide to Securitisation, November 2024 (<https://www.slaughterandmay.com/insights/new-insights/first-time-originator-s-guide-to-securitisation-november-2024/>).

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 (<https://www.economicliberties.us/our-work/new-money-trust>).

Stein, J.C., The Fire-Sales Problem and Securities Financing Transactions, Speech at the Federal Reserve Bank of New York Workshop on Fire Sales as a Driver of Systemic Risk in Triparty Repo and other Secured Funding Markets, New York, 04 October 2013 (<https://www.federalreserve.gov/newsevents/speech/stein20131004a.htm>).

Stieffmüller, C.M., Ten Years After: Back to Business as Usual, Finance Watch Report, 13 September 2018 (<https://www.finance-watch.org/policy-portal/stability-supervision/10yearsafter-back-to-business-as-usual-an-assessment-of-the-post-crisis-financial-regulation-in-europe/>).

Stieffmüller, C.M., One Born Every Minute: Striking the Balance Between Promoting Innovation and Protecting Citizens, Finance Watch Report, October 2021 (<https://www.finance-watch.org/policy-portal/digital-finance/an-analysis-of-the-eu-digital-finance-package-new-finance-watch-report/>).

Stieffmüller, C.M., Lost Momentum: The Evolution and Challenges of Basel III, Finance Watch Report, September 2024 (<https://www.finance-watch.org/policy-portal/stability-supervision/report-lost-momentum-the-evolution-and-challenges-of-basel-iii/>).

Stieffmüller, C.M., Introduction to Securitisation: Structures, Regulation and Market for Asset-Backed Securities in the EU, Finance Watch Position Paper, 29 October 2024 (<https://www.finance-watch.org/policy-portal/stability-supervision/introduction-to-securitisation-structures-regulation-and-market-for-asset-backed-securities-in-the-eu/>).

Taleb, N.N., The Black Swan: The Impact of the Highly Improbable, 2nd ed., Random House (2007).

Taleb, N.N., Antifragile: Things That Gain From Disorder, Random House (2012).

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 (<https://www.thinkingaheadinstitute.org/content/uploads/2024/10/PI-500-2024.pdf>).

Turner, A., How to Tame Global Finance, Prospect Magazine, 27 August 2009 (<https://www.prospectmagazine.co.uk/magazine/how-to-tame-global-finance>).

U.K. House of Commons (Work and Pensions Committee), Defined Benefit Pensions with Liability Driven Investments. Seventh Report of Session 2022–23, H.M. Stationery Office (2023) (<https://committees.parliament.uk/publications/40563/documents/197799/default/>).

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) (<https://www.govinfo.gov/app/details/GPO-FCIC>).

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>).

Wilmot, J. / Sweeney, J. / Klein, M. / Plant, A. / Schwartz, J. / Shi, Z. / Zhao, W., Market Focus: When Collateral is King, Credit Suisse Global Strategy Research, 15 March 2012 (https://www.cigionline.org/sites/default/files/shared/king_collateral_-_4b.pdf).

NOTE: All links valid as of 30 June 2025

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Finance Watch is an independently funded public interest association dedicated to making finance work for the good of society. Its mission is to strengthen the voice of society in the reform of financial regulation by conducting advocacy and presenting public interest arguments to lawmakers and the public. Finance Watch's members include consumer groups, housing associations, trade unions, NGOs, financial experts, academics and other civil society groups that collectively represent a large number of European citizens. Finance Watch's founding principles state that finance is essential for society in bringing capital to productive use in a transparent and sustainable manner, but that the legitimate pursuit of private interests by the financial industry should not be conducted to the detriment of society. For further information, see www.finance-watch.org.

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