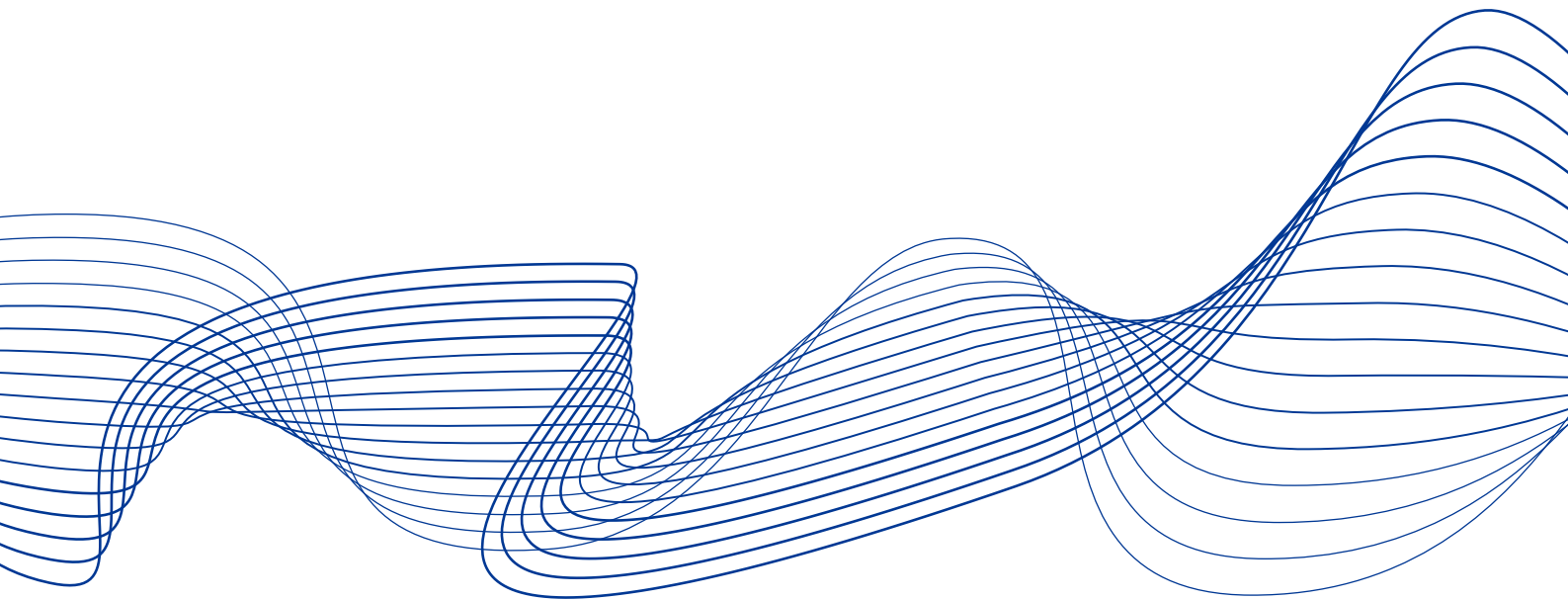


**Issues note on policy
options to address risks in
corporate debt and real
estate investment funds
from a financial stability
perspective**

September 2023



ESRB

European Systemic Risk Board

European System of Financial Supervision

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Executive summary

This issues note describes a high-level approach to addressing risks in investment funds that invest in assets which are either inherently illiquid or might become illiquid in times of stress. In particular, the note focuses on investment funds with large exposures to corporate debt and real estate. This reflects the priority areas meriting enhanced scrutiny from a financial stability perspective that the European Systemic Risk Board (ESRB) has identified.¹ Considerations presented in this note, as well as policy options discussed, could also be applied to other fund types with vulnerabilities similar to those present in corporate debt funds and real estate funds.

Structural vulnerabilities of investment funds arise mainly from liquidity mismatch and the use of leverage. Investment funds serve an important economic function – they allow savings to be channelled into productive investment and financing of the real economy. This typically involves some degree of liquidity transformation. However, liquidity transformation can give rise to negative externalities and financial stability concerns. It can result in forced asset sales if investment funds are faced with large redemptions during stressed market conditions. This can amplify price falls and contribute to a downward price spiral and a deterioration of liquidity conditions. Further, it can have adverse spillover effects on other financial institutions that have exposures to these assets or other assets that are closely correlated. The use of leverage can increase the selling pressure on funds following market declines, e.g. through deleveraging, forced sales to meet covenants, margin or collateral calls, liquidation of collateral, or defaults.

Investment fund resilience could be improved by adapting certain policy tools already present in the regulatory framework to better serve financial stability purposes. First, structural liquidity mismatch in real estate funds and other funds which invest in inherently illiquid assets could be reduced by ensuring closer alignment between the fund's redemption terms and its investment strategy. This could be achieved by introducing longer notice periods as well as lower redemption frequency. Alternatively, the risks associated with high demand for redemptions could be mitigated by setting up such funds as closed-end funds. Second, financial stability could benefit if investment funds used anti-dilution liquidity management tools (LMTs), such as swing pricing, dual pricing, anti-dilution levies or redemption fees, as part of their day-to-day management. This would mitigate first-mover advantage as well as the negative connotations of using such tools only in a crisis. Anti-dilution LMTs seem best suited to corporate bond funds and other funds exposed to markets where liquidity conditions can deteriorate quickly. Third, leveraged funds could increase their preparedness for cash needs stemming from margin and/or collateral calls in derivative and repo transactions by holding appropriate liquidity buffers, which could be calibrated through stress testing.

In addition to adapting existing policy tools, the development of new policy tools might be useful in increasing investment fund resilience and thus benefit the stability of the wider financial system. The options for new policy tools set out in this issues note range from incremental amendments – such as building on the liquidity bucketing approach with a view to

¹ [Recommendation of the European Systemic Risk Board of 6 May 2020 on liquidity risks in investment funds \(ESRB/2020/4\)](#).



combining it with measures aimed at increasing investment fund resilience – to structural changes, such as developing an ex ante policy instrument aimed at mitigating the build-up of liquidity risk from a financial stability perspective. As actions taken by individual fund managers might prove insufficient in addressing the build-up of vulnerabilities and/or system-wide repercussions in times of stress, there is also a need to discuss the role that the authorities can play in addressing shocks triggered, transmitted and/or amplified by (the collective action of) investment funds. This would require detailed and timely information from a system-wide perspective to ensure an appropriate response in the event of a crisis.

The ESRB welcomes the provisional agreement reached in July 2023 by the European Parliament and the Council of the European Union in the context of the review of the Alternative Investment Fund Managers Directive (AIFMD) and the Undertakings for Collective Investment in Transferable Securities (UCITS) Directive.² Once adopted, several new provisions will serve to enhance the regulatory and supervisory framework for investment funds from a financial stability perspective. In particular, the ESRB welcomes the fact that the provisional agreement envisions the increased availability and consistent use of LMTs for fund managers, which the ESRB had called for.³ This change, if implemented effectively, will help fund managers deal with redemption pressures when market liquidity becomes stressed. At the same time the ESRB believes that the regulatory and supervisory framework can be further enhanced, including by some of the policy options set out in this issues note.

The ESRB will undertake further work to develop certain policy options with a view to supporting national and EU authorities after the revised AIFMD and UCITS Directives have come into force. The agreement on the review of the AIFMD and the UCITS Directive, once adopted, will provide a basis for further scrutiny of systemic risks within the context of investment fund regulation. Further work by the ESRB will progress in two steps. First, the ESRB will focus on the adaptation of existing tools available within the regulatory framework to better serve financial stability purposes. By doing so, the ESRB aims to support national authorities in transposing the reviewed Directives into national law. It also aims to inform the development of relevant Level 2 and Level 3 EU acts as well as national supervisory guidelines. Second, over the medium term, the ESRB will assess the need for new tools to reduce systemic risk. This medium-term work would serve to inform possible future reviews of the AIFMD and the UCITS Directive. The ESRB will be mindful of, and contribute to, international discussion in this area.

² See Directorate-General for Financial Stability, Financial Services and Capital Markets Union (2023), “**Commission welcomes political agreement on enhanced regulatory framework for investment funds**”, *news article*, European Commission, 20 July; and Council of the EU (2023), “**Capital market union: provisional agreement reached on alternative investment fund managers directive and plain-vanilla EU investment funds**”, *press release*, 20 July.

³ See the ESRB’s letters to the co-legislators on this topic: “**Letter to the European Parliament on the AIFMD Review**”, 23 March 2022; and “**Letter to the Council Working Party on the AIFMD Review**”, 23 March 2022.



1 Introduction

Investment funds are key intermediaries in the financial system and can contribute to its overall resilience. Investment funds play an important role in allocating resources within the real economy by helping to ensure that savings are channelled into investment opportunities and redistributing risks. The main advantage offered by investment funds, compared with alternatives such as direct investment or dedicated managed accounts (e.g. private banking), is diversification: by pooling resources, (small) investors can gain exposure to a broad and diversified portfolio.⁴ Investment funds also play another important role within the economy by providing an alternative source of financing to bank financing. As a wider range of funding sources is useful in sharing financial risks, investment funds can contribute to the efficiency and overall resilience of the financial system and faster economic recovery.⁵

At the same time, the larger footprint of investment funds presents certain vulnerabilities that may contribute to systemic risk. While the growth in the size and provision of credit to the real economy alone does not necessarily increase financial stability risks, it does increase the systemic importance of the investment fund sector. As the sector becomes larger, its structural vulnerabilities become a more important feature of systemic risk overall. Many (global) initiatives have been carried out in recent years to obtain a better understanding of the systemic risk contribution of investment funds.⁶

The structural vulnerabilities of investment funds arise mainly from liquidity mismatch and the use of leverage and may become systemic when they trigger, transmit and/or amplify shocks to the wider financial system or real economy through their interconnections. Asset sales are often related to risk repricing and the related price discovery process. Risk repricing and price discovery are part of the natural dynamics and are a core economic function of financial markets. However, heavy selling pressures related to abrupt deleveraging or excessive investor redemptions can contribute to excess volatility in financial markets and systemic risk. If selling pressures are self-amplifying and/or particularly high, the market may not be able to balance supply and demand. In turn, asset prices may spiral downwards and adversely affect the wider financial system (e.g. through a broad loss of confidence among investors). Excessive use of leverage could

⁴ An investor with an investible capital of €10,000 wishing to invest directly in the stock market will not be able to replicate any of the European regulated market indexes, for the simple fact that the unit cost of shares (not to mention the minimum lot size in which they are traded) requires a much larger investment to be able to buy all the shares in the right proportion. However, by investing in a fund (which is not subject to such constraints owing to its size) the investor can not only gain exposure to the full index but also do so at much lower transaction costs.

⁵ See Grjebine, T., Szczerbowicz, U. and Tripier, F. (2017), "**Corporate debt structure and economic recoveries**", *European Economic Review*, Vol. 101, January, pp. 77-100.

⁶ See, for instance, ESRB (2018), "**Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds (ESRB/2017/6) – Annex II Economic rationale and assessment**", February; FSB (2017), "**Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities**", 12 January; International Monetary Fund (2015), "**The asset management industry and financial stability**", in *Global Financial Stability Report: Navigating Monetary Policy Challenges and Managing Risks*, Washington D.C., April; and Garcia Pascual, A., Singh, R. and Surti, J. (2021), "**Investment Funds and Financial Stability: Policy Considerations**", *Departmental Paper*, No 2021/018, International Monetary Fund, September. In April 2023 the Financial Stability Oversight Council (FSOC) proposed new rules to assess the financial stability risks related to non-banks, to aid in the process of identifying systemically important non-banks. These entities would then be subject to Federal Reserve System supervision. See FSOC (2021), "**FSOC Issues for Public Comment Proposed Analytic Framework for Financial Stability Risks and Proposed Guidance on Nonbank Financial Company Determinations**", *press release*, April 21.



trigger such a self-amplification mechanism when it leads to excessive deleveraging. A widespread mismatch between the liquidity of the assets held by funds and the liquidity offered to investors could also lead to excessive liquidity demand and amplify the vulnerabilities associated with the use of leverage.

In May 2020 the ESRB identified two segments of the EU investment fund sector as priority areas for enhanced scrutiny from a financial stability perspective, i.e. funds with large exposures to corporate debt and real estate.⁷ As those funds typically engage in substantial liquidity transformation⁸, redemption pressures in stressed market conditions could prompt fund managers to hastily sell less liquid assets, thus contributing to downward pressure on prices and deterioration in liquidity conditions. This could have adverse spillover effects on other financial institutions exposed to these assets, or assets that are closely correlated, especially those that use mark-to-market valuation. In such a scenario, redemption pressures on corporate bond funds could also adversely affect the cost and availability of market-based financing for non-financial corporations, considering that the cost of borrowing at issuance is generally aligned with the interest rate prevailing on the secondary market. The investment fund sector comprises different types of funds, with investments made across a wide range of asset classes and each posing their own liquidity management challenges. Considerations presented in this note, as well as policy options discussed, could also apply to other fund types with similar vulnerabilities to those present in corporate debt funds and real estate funds.

Historically, investment funds have not been the primary cause of major episodes of systemic failure, though they can amplify financial market stress and contribute to systemic risk. On their own, investment funds are unlikely to carry the same scale and form of systemic risk as systemic banks. Historically though, there have been some episodes of financial instability related to, transmitted or amplified by investment funds: for instance, the collapse of Long-Term Capital Management (LTCM) in 1998⁹, the contribution of money market funds (MMFs) to the global financial crisis of 2007-2008¹⁰ and the COVID-19 financial market turmoil in 2020, as well as selling pressures from open-ended corporate bond funds in some jurisdictions.¹¹ Although the dynamics of the recent events regarding the UK gilt market and liability-driven investment (LDI) strategies are yet to be fully understood, they also illustrate the risks that can be transmitted by leveraged investors and thus increase systemic risk.¹²

⁷ See [Recommendation of the European Systemic Risk Board of 6 May 2020 on liquidity risks in investment funds \(ESRB/2020/4\)](#).

⁸ See Table 1 in ESRB (2023), ["EU Non-bank Financial Intermediation Risk Monitor 2023"](#), No 8, June.

⁹ See US Department of the Treasury (1999), ["Hedge funds, leverage, and the lessons of Long-Term Capital Management: report of the President's Working Group on Financial Markets"](#).

¹⁰ See Baba, N., McCauley, R.N. and Ramaswamy, S. (2009), ["US dollar money market funds and non-US banks"](#), *BIS Quarterly Review*, Bank for International Settlements, March.

¹¹ FSB (2020), ["Holistic Review of the March Market Turmoil"](#), 17 November; IOSCO (2022), ["Corporate Bond Markets – Drivers of Liquidity During COVID-19 Induced Market Stresses"](#), *Discussion Paper*, April; and FSB (2022), ["Liquidity in Core Government Bond Markets"](#), 20 October, highlighted the role of leveraged positions, especially for hedge funds, in the US treasury markets, which led to the sale of substantial amounts of US Treasuries in March 2020 by historical standards.

¹² See ESRB (2023), ["EU Non-bank Financial Intermediation Risk Monitor 2023"](#), No 8, June; Breeden, S. (2022), ["Risks from leverage: how did a small corner of the pensions industry threaten financial stability?"](#) speech given at ISDA & AIMA, Bank of England, 7 November; Financial Policy Committee (2022) ["Financial Stability Report"](#), Bank of England, December; and Bank of England (2023), ["LDI minimum resilience – recommendation and explainer"](#), Bank staff paper, 29 March.



In recent years, many international fora have stressed the need to expand the policy toolkit to address systemic risks related to non-bank financial institutions, including investment funds. The existing regulatory framework for investment funds already contains some tools that target systemic risk. In response to the crisis episodes mentioned above, considerable policy work to safeguard financial stability has been accomplished at national, European and global levels, thus complementing the regulatory framework and supervisory practice.¹³ The ESRB has also issued several recommendations to address systemic risk related to liquidity mismatch and leverage in investment funds (see Box 1).¹⁴

The ESRB welcomes the provisional agreement reached by the European Parliament and the Council of the EU in the context of the review of the AIFMD and UCITS Directive¹⁵, albeit that the systemic perspective should be developed further. Once adopted, several provisions of the revised AIFMD and UCITS Directive will further enhance the regulatory and supervisory framework for investment funds.¹⁶ In particular, the ESRB welcomes the fact that the provisional agreement envisions the increased availability and consistent use of LMTs among fund managers, as indeed the ESRB had called for. This will help fund managers address redemption pressures when market liquidity becomes stressed. However, the ESRB also believes that the regulatory and supervisory framework can be further enhanced. The considerations presented in this issues note can contribute to the international discussion on how best to improve investment fund resilience from a financial stability perspective. They may also help inform national authorities' transposition of the AIFMD and UCITS Directive into national law and the development of relevant Level 2 and Level 3 EU acts as well as national supervisory guidelines.

This issues note describes a high-level approach to addressing risks in investment funds that invest in assets which are either inherently illiquid or might become illiquid in times of stress. First, the note provides an overview of the EU corporate debt and real estate investment fund sector. Second, it explores fund structural vulnerabilities that could increase systemic risk. Third, it assesses the degree to which those vulnerabilities and related systemic risks are already targeted by the regulatory framework. Lastly, the note identifies areas of the investment fund framework that should be strengthened and considers how existing or new prudential tools could be used to further address residual systemic risks.

¹³ See, for example, FSB (2017), "[Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities](#)", 12 January; IOSCO (2018), "[Recommendations for Liquidity Risk Management for Collective Investment Schemes – Final Report](#)", February; IOSCO (2018), "[Open-ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration – Final Report](#)", February; IOSCO (2019), "[Recommendations for a Framework Assessing Leverage in Investment Funds – Final Report](#)", December; FSB (2022), "[Enhancing the Resilience of Non-Bank Financial Intermediation: Progress report](#)", 1 November; and International Monetary Fund (2022), "[Global Financial Stability Report: Navigating the High-Inflation Environment](#)", Washington D.C., October.

¹⁴ See [Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds \(ESRB/2017/6\)](#); [Recommendation of the European Systemic Risk Board of 6 May 2020 on liquidity risks in investment funds \(ESRB/2020/4\)](#); [Recommendation of the European Systemic Risk Board of 20 December 2012 on money market funds \(ESRB/2012/1\)](#); and [Recommendation of the European Systemic Risk Board of 2 December 2021 on reform of money market funds \(ESRB/2021/9\)](#).

¹⁵ See the ESRB's letters to the co-legislators on this topic: "[Letter to the European Parliament on the AIFMD Review](#)", 23 March 2022; and "[Letter to the Council Working Party on the AIFMD Review](#)", 23 March 2022.

¹⁶ See Directorate-General for Financial Stability, Financial Services and Capital Markets Union (2023), "[Commission welcomes political agreement on enhanced regulatory framework for investment funds](#)", *news article*, European Commission, 20 July; and Council of the EU (2023), "[Capital market union: provisional agreement reached on alternative investment fund managers directive and plain-vanilla EU investment funds](#)", *press release*, 20 July.



Box 1

ESRB Recommendations on risks in investment funds

The ESRB has issued two Recommendations on risks in investment funds. In December 2017 it published its Recommendations on liquidity and leverage risks in investment funds.¹⁷ In this Recommendation, the ESRB notes that the current legislative framework in the European Union includes measures designed to reduce the amplifying effects of the investment fund sector in the event of a financial crisis and to make investment funds more resilient. The Recommendation sets out to address systemic risks related to liquidity mismatches and the use of leverage in investment funds. It calls on the European Commission to propose EU legislation that (i) incorporates a common Union legal framework governing the inclusion of additional LMTs; (ii) includes measures to limit liquidity transformation in open-ended alternative investment funds (AIFs); and (iii) requires UCITS and UCITS management companies to regularly report data. Meanwhile, the European Securities and Markets Authority (ESMA) was recommended to (i) develop guidance on the practice to be followed by managers for stress testing liquidity risk for individual AIFs and UCITS; and (ii) give guidance on the framework to assess the extent to which the use of leverage within the AIF sector contributes to the build-up of systemic risk in the financial system.

ESMA published guidelines on liquidity stress testing in investment funds on 16 July 2020,¹⁸ in which it provides detailed and comprehensive instructions on the practice to be followed by managers for the stress testing of liquidity risk for individual AIFs and UCITS. ESMA takes a principles-based approach owing to the heterogeneity of fund structures, thus affording managers more flexibility. ESMA has also published Guidelines on a framework to ensure a consistent approach among national competent authorities (NCAs) in assessing systemic risk arising from leverage, including a set of indicators.¹⁹ The framework is based on a two-step approach that is closely aligned with the International Organization of Securities Commission (IOSCO) framework for assessing leverage in investment funds.²⁰ The Recommendations to the Commission are included in the ESRB's response in 2021 to the European Commission consultation on the review of AIFMD.²¹

In response to the COVID-19 stress period, the ESRB published a Recommendation on liquidity risks in investment funds.²² The Recommendation was designed to enhance the preparedness to respond to potential future adverse shocks that could lead to a deterioration in financial market liquidity, with potentially adverse implications for financial stability conditions within the EU. The ESRB advised ESMA to coordinate with the NCAs to undertake a focused supervisory exercise with investment funds that have large exposures to corporate debt and real estate assets so as to assess the preparedness of these two segments of the investment funds sector to potential future

¹⁷ **Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds (ESRB/2017/6).**

¹⁸ ESMA (2020), "**Guidelines on liquidity stress testing in UCITS and AIFs**", 16 July.

¹⁹ ESMA (2021), "**Guidelines on Article 25 of Directive 2011/61/EU**", 23 June.

²⁰ IOSCO (2019), "**Recommendations for a Framework Assessing Leverage in Investment Fund – Final Report**", December.

²¹ ESRB (2021), "**ESRB response to the European Commission consultation on the review of AIFMD**", 29 January.

²² **Recommendation of the European Systemic Risk Board of 6 May 2020 on liquidity risks in investment funds (ESRB/2020/4).**



adverse shocks. In November 2020 ESMA published a report, which suggested that fund managers should enhance their preparedness for potential future adverse shocks that could lead to a deterioration in financial market liquidity and valuation uncertainty.²³ ESMA concluded that while the investment funds under review overall managed to adequately maintain their activities when facing redemption pressures and/or episodes of valuation uncertainty, this finding should be viewed with caution, as redemption pressures related to the COVID-19 market turmoil were short-lived and took place amid substantial central bank and government support for the financial markets.

The ESRB also issued two Recommendations on MMFs – in 2012 and 2021. In its 2012 Recommendation²⁴, the ESRB noted that potential systemic risks stemming from MMFs relate to the first-mover advantage, the implicit and discretionary nature of support by sponsor companies, and the high interconnectedness of MMFs with the rest of the financial system. Against this backdrop, the ESRB advised the European Commission to ensure that (i) MMFs have a fluctuating net asset value; (ii) liquidity requirements are strengthened, which would include imposing minimum amounts of daily and weekly liquid assets and ensuring effective LMTs are in place; (iii) MMFs publicly disclose relevant information, including on valuation practices and the absence of capital guarantee; and (iv) reporting and information-sharing by relevant authorities is enhanced. Many – albeit not all – of the recommendations were included in the Money Market Fund Regulation (MMFR)²⁵, which sets out rules designed to make MMFs more resilient and limit the contagion channels highlighted during the global financial crisis. The 2021 ESRB Recommendation²⁶ reflected the aim of the 2012 ESRB Recommendation of reducing the deposit-like features being offered by certain MMFs via redemption at par in the context of the existing MMFR. More specifically, it advises the Commission to: (i) reduce the threshold effects embedded in regulatory requirements that might generate first-mover advantage and lead to runs; (ii) introduce higher liquidity requirements and encourage MMFs to use liquidity buffers to meet redemptions; (iii) require MMFs to have at least one LMT in place that passes trading costs on to departing and incoming investors; and (iv) enhance monitoring and stress-testing frameworks.

²³ ESMA (2020), “**Recommendation of the European Systemic Risk Board (ESRB) on liquidity risk in investment funds**”, ESMA34-39-1119, 12 November.

²⁴ **Recommendation of the European Systemic Risk Board of 20 December 2012 on money market funds (ESRB/2012/1)**.

²⁵ **Regulation (EU) 2017/1131 of the European Parliament and of the Council of 14 June 2017 on money market funds** (OJ L 169, 30.6.2017, p. 8). See also ESRB (2019), “**Compliance assessment of the implementation of the Recommendation of the European Systemic Risk Board of 20 December 2012 on money market funds (ESRB/2012/1)**”, Compliance assessment and follow-up evaluation, March.

²⁶ **Recommendation of the European Systemic Risk Board of 2 December 2021 on reform of money market funds (ESRB/2021/9)**.



2 Overview of the corporate debt and real estate investment fund sector

This section outlines the key characteristics of European corporate debt and real estate funds. It aims to illustrate the importance of corporate debt and real estate funds for underlying markets and the real economy, and to depict liquidity mismatch and the use of leverage by real estate AIFs. Providing a similar assessment for corporate bond funds remains challenging, as they are not a separate fund category in the AIFMD reporting, or in European Central Bank (ECB) investment fund statistics.

2.1 Corporate bond funds

Investment funds are a valuable source of funding for EU non-financial corporations (NFCs) and have continuously increased their holdings of EU-issued corporate debt over the past eight years. At the end of 2022 they held €457 billion in debt securities issued by EU NFCs (Chart 1, panel a), of which €421 billion in long-term and €36 billion in short-term instruments. Holding 35% of the total NFC debt securities outstanding, non-MMF investment funds had the largest footprint in that market segment (Chart 1, panel b), followed by insurance companies. Because of their substantial share in the market, large flows out of investment funds and subsequent sales of corporate bonds in times of stress have the potential to create and/or amplify negative pressure on asset prices.

Economic uncertainty and a changing interest rate environment pose additional challenges for investment funds holding corporate debt. In recent years, the structure of corporate debt portfolios has deteriorated in terms of credit quality. At the end of 2019 58% of corporate bonds held by non-MMF investment funds had an investment grade rating, compared with 46% at the end of 2022 (Chart 2, panel a). Increased concerns over corporate defaults might push up the redemption risk for funds with large exposures to lower quality holdings. In addition, bond portfolios are subject to duration risk, or mark-to-market losses if interest rates increase. Bonds with longer maturities tend to be more sensitive to changes in interest rates. The average maturity of non-MMF investment fund corporate debt holdings decreased sharply in 2022 (Chart 2, panel b). However, there is still a risk of further investor outflows in the event of additional interest rate increases. The recent increase in policy rates by major central banks was faster and larger than over the previous monetary tightening cycle. Even with a lower sensitivity to interest rate changes, the valuation effect could be considerable.

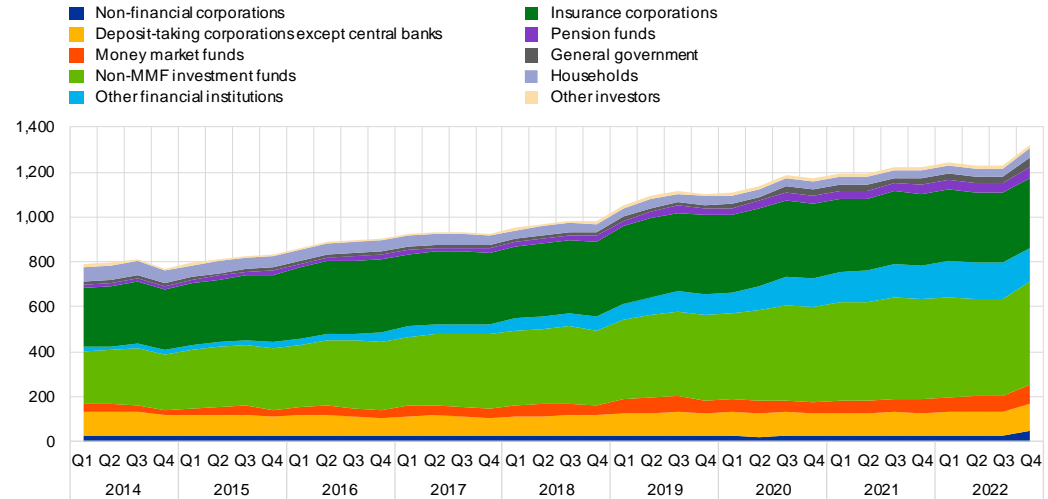


Chart 1

Investors in EU NFC debt securities (panel a) and market share of non-MMF investment funds in the EU NFC debt securities market (panel b)

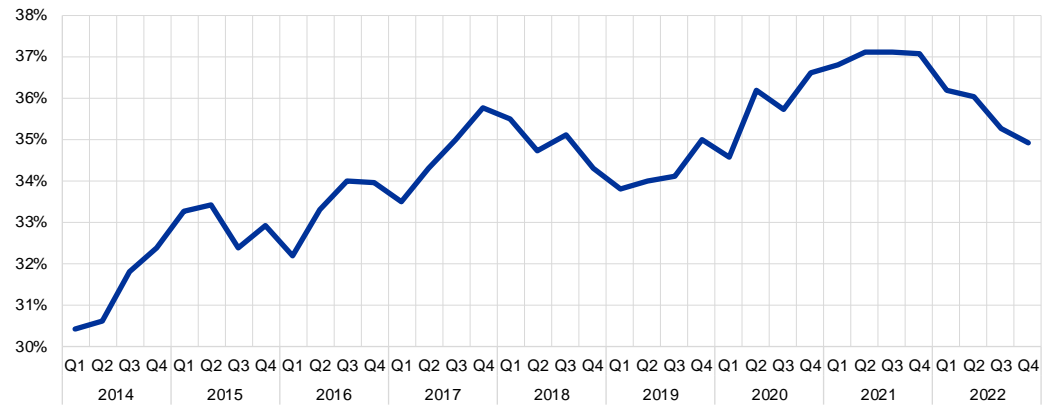
a) Investors in EU NFC debt securities

(EUR billions)



b) Market share of non-MMF investment funds in the EU NFC debt securities market

(percentages)



Sources: ECB Securities Holdings Statistics, ESRB calculations.

Note: The latest observations are for the last quarter of 2022. The issuance of NFC securities may be underestimated in existing data sources as they do not include NFC issuance via financing conduits (see Box 2 in ECB Committee on Financial Integration (2022), "Financial Integration and Structure in the Euro Area", European Central Bank, April).

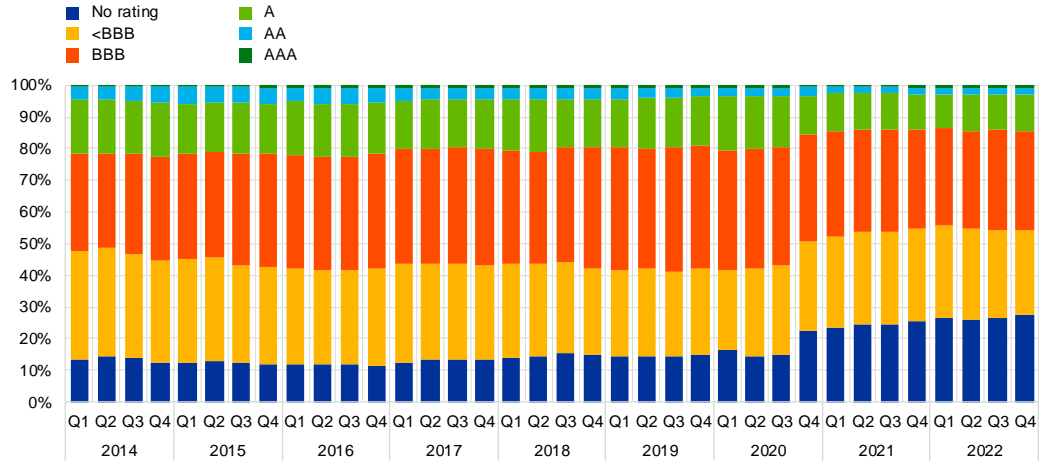


Chart 2

Euro area investment fund corporate debt holdings: average rating (panel a) and maturity (panel b)

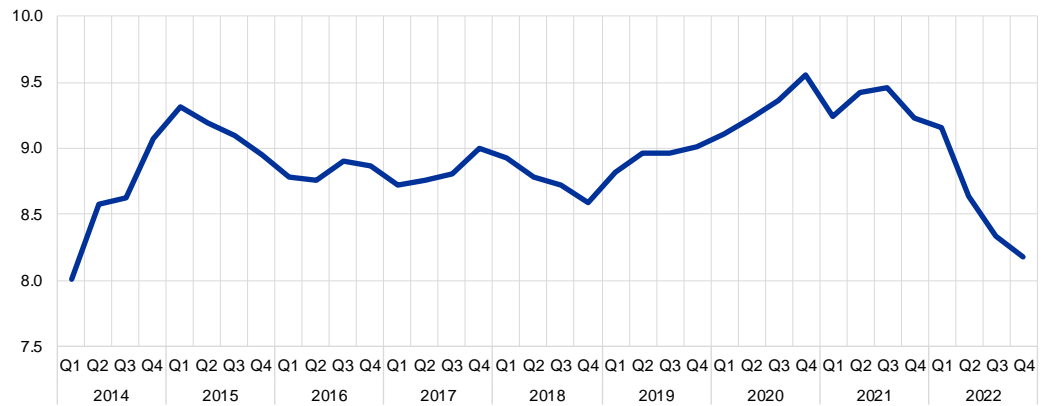
a) Average rating

(share of total NFC corporate debt holdings)



b) Maturity

(years)



Sources: ECB Securities Holdings statistics, Centralised Securities Database and ECB calculations.
 Note: The latest observations are for the last quarter of 2022.

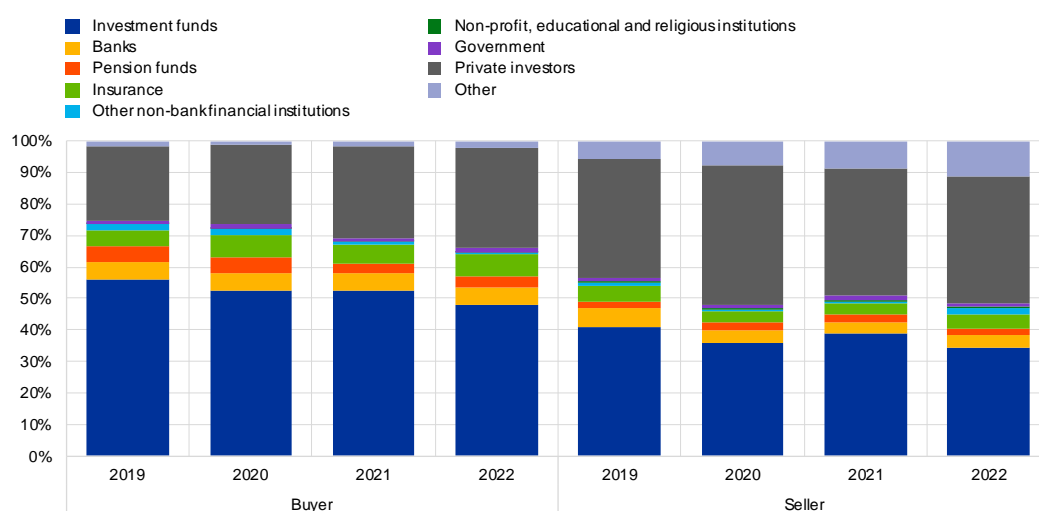


2.2 Real estate funds

Real estate funds play an important role in the commercial real estate (CRE) market. In the last decade the value of net assets of euro area real estate investment funds has increased more than threefold, from €323 billion at the end of 2012 to €1,040 billion at the end of 2022 (from 4% to 6% of total investment fund net asset value respectively). This asset growth reflected the increase in real estate values, coupled with net inflows into real estate funds amounting to €384 billion. Investment funds account for the bulk of CRE transactions, with approximately 50% as buyers and almost 35% as sellers (Chart 3). The banking sector has the largest exposure to the CRE market in most euro area countries, although in Luxembourg, Ireland and the Netherlands exposures of investment funds are the most pronounced (Chart 4). Investment funds have a large footprint in CRE markets in euro area countries such as Luxembourg, Ireland, the Netherlands and Portugal.²⁷

Chart 3
CRE transactions by buyer and seller type

(percentages of volume)



Sources: Real Capital Analytics (RCA), ESRB calculations.

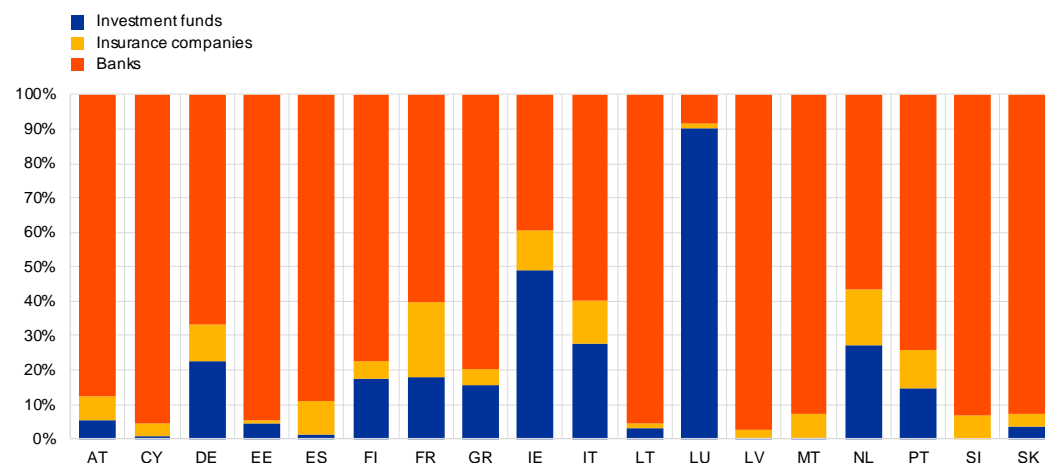
Note: Sample includes European Economic Area countries. The "private investors" category refers to privately-controlled companies whose business is primarily geared towards operating, developing or investing in CRE.

²⁷ See European Central Bank (2023), "The growing role of investment funds in euro area real estate markets: risks and policy considerations", *Macprudential Bulletin*, No 20; and Daly, P., Moloney, K. and Myers, S. (2021), "Property funds and the Irish commercial real estate market", *Financial Stability Notes*, No 1, Central Bank of Ireland, February.



Chart 4 Share of CRE exposures by investor type

(percentages, end-2022)



Sources: AnaCredit, AIFMD, European Insurance and Occupational Pensions Authority (EIOPA) statistics, ESRB calculations.

Notes: For the AnaCredit data, both purpose and protection variables have been considered. For the AIFMD data, the series considered reflects the value of real estate assets held by AIFs. For EIOPA, data on exposures include property (CIC 91, CIC 93, CIC 94, CIC 95, CIC 96 and CIC 99), equity of real estate-related corporations (CIC 32), real estate funds (CIC 45), mortgages (CIC 84) where the issuer is not a natural person, corporate bonds (CIC 2) which are issued by real estate firms, and other (CIC 65 and CIC 55). Real estate assets are as defined in question 22 of [EIOPA Insurance Statistics Frequently Asked Questions](#). Assets that belong to unit and index-linked insurance are excluded. Note that the CRE exposures of different investor types may overlap, i.e. bank and insurers' CRE exposures include lending to, and holdings of units in, real estate funds.

The EU real estate fund sector largely consists of open-ended AIFs domiciled in a few countries.

Notably, funds domiciled in Germany, Luxembourg, France, the Netherlands and Italy account for 93% of the total market in the euro area (Chart 5, panel a). Almost all euro area real estate funds are subject to the AIFMD (Chart 5, panel b). However, in a few euro area countries – Ireland, Finland, the Netherlands and Luxembourg – there are also UCITS funds that are exposed to real estate assets indirectly through equity holdings. As UCITS funds are required to invest in transferable securities and other financial instruments that are sufficiently liquid so as not to compromise their ability to redeem or repurchase units at the request of unitholders, the liquidity transformation they engage in is less pronounced than for real estate AIFs. Around 78% of euro area real estate investment funds have an open-ended structure and therefore offer to repurchase or redeem their units prior to the commencement of their liquidation phase or wind-down (Chart 5, panel b). The degree of liquidity mismatch varies within these funds and depends on the redemption terms and conditions they offer (including LMTs).

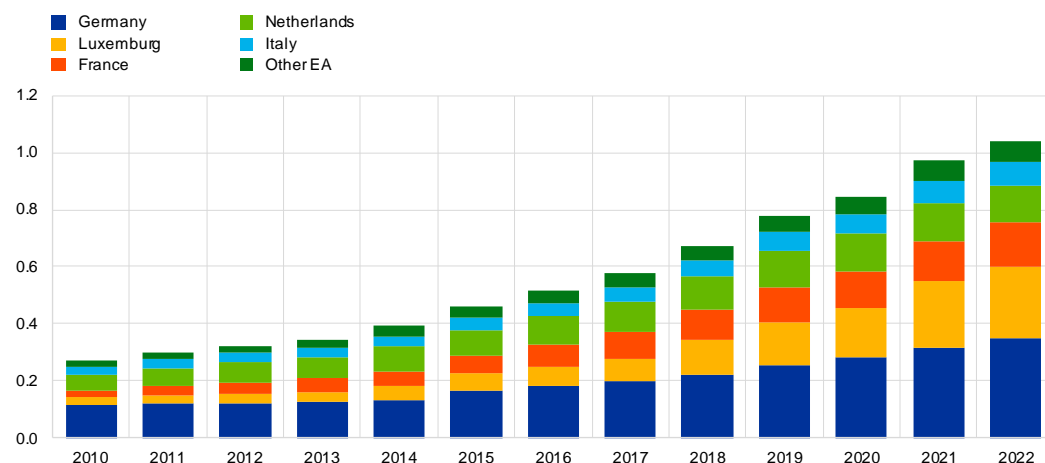


Chart 5

Net assets of euro area real estate funds: by country of fund domicile (panel a) and by fund type (panel b)

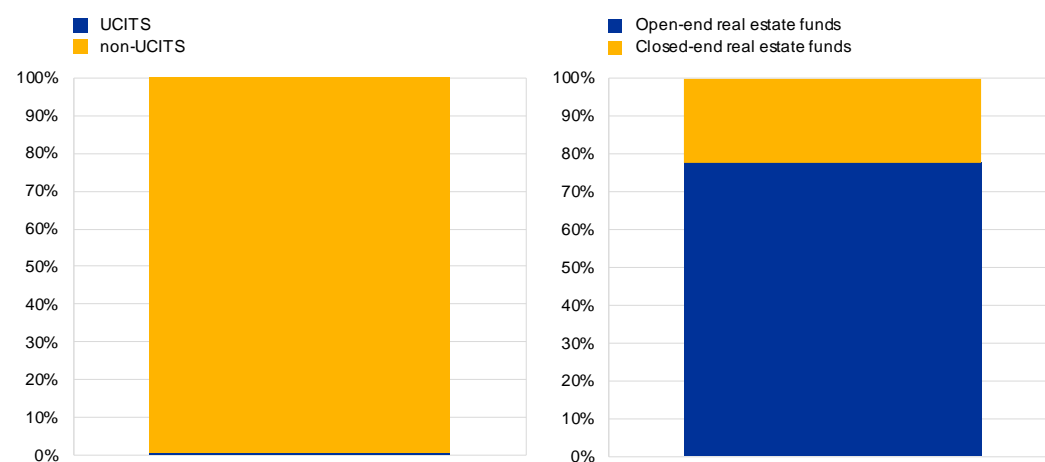
a) By country of fund domicile

(EUR trillions)



b) By fund type

(percentages)



Sources: ECB Investment Funds Balance Sheet Statistics, ESRB calculations.

Notes: In the middle and right panels, observations are for end-2022. EA stands for euro area.

European real estate AIFs are largely exposed to real estate assets directly. At end-2022 net exposures to real estate assets amounted to approximately €900 billion and accounted for 70% of total net exposures among real estate AIFs. Exposures to CRE were the largest (60% of total net exposures). In most fund domiciles, including the largest ones, physical real estate was the main exposure of such funds (Chart 6, panel a). Investment funds can also have indirect exposures to real estate, such as through portfolio holding companies or shares in other collective undertakings.



In some countries (e.g. the Netherlands), exposures to equity instruments are actually higher than direct exposures to real estate.

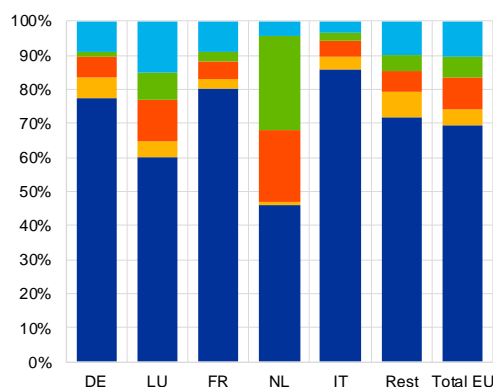
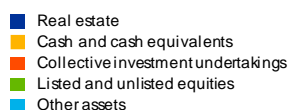
Financial institutions are the main holders of real estate AIF units. Banks, insurers, pension funds, other collective investment undertakings and other financial institutions accounted for approximately 70% of the total investor base of real estate AIFs at end-2022 (Chart 6, panel b). Real estate AIFs were predominantly used by long-term investors – pension funds and insurance companies. The risk of large sudden redemptions tends to be lower in AIFs mostly held by investors with a long-term investment horizon, especially if they have a close business relationship with the fund managers (for instance, when the asset manager belongs to the same financial group as the investor, or in the case of funds run for single institutional investors).

Chart 6

EU-domiciled real estate AIF exposures (panel a) and investors (panel b)

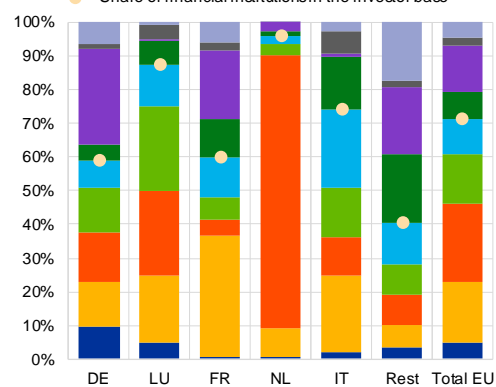
a) EU-domiciled real estate AIF exposures

(percentages)



b) EU-domiciled real estate AIF investors

(percentages)



Sources: AIFMD, ESRB calculations. Data as at end-2022.

Secured borrowing (including reverse repos) is the main source of leverage among real estate AIFs.

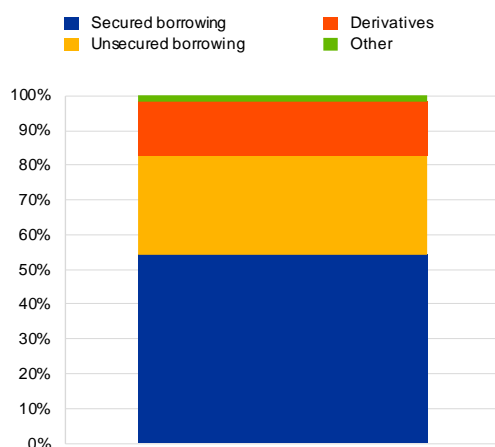
Derivative instruments were a further source of leverage for EU real estate AIFs, albeit to a smaller extent (Chart 7, panel a). Real estate AIFs were mostly exposed to foreign exchange derivatives used for hedging purposes, followed by interest rate derivatives. At the end of 2022 financial leverage among real estate funds (AIFs and UCITS) in the euro area was 123% on average (Chart 7 panel b).



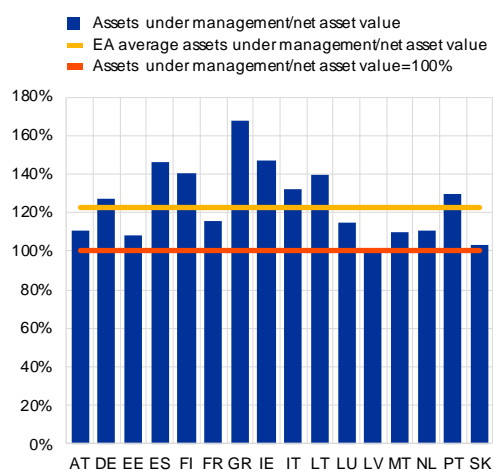
There is a sizeable mismatch between investor liquidity and portfolio liquidity of real estate AIFs. At an aggregate level, investors are entitled to redeem 11% of net assets within one month, while only 6% of the portfolio can be liquidated within this timeframe (Chart 8, panel a). This liquidity shortage increases for longer time horizons. Within a one-year period, it reaches 16% of the net asset value (NAV) (Chart 8, panel b). This means that, within the sample of real estate AIFs that have a liquidity shortage, if all investors entitled to withdraw their invested funds, or receive redemption payments, were to do so, the fund managers would be unable to meet requests corresponding to 16% of the NAV.

Chart 7
Borrowing sources of EU-domiciled real estate AIFs (panel a) and leverage for euro area real estate investment funds (panel b)

a) Borrowing sources of EU-domiciled real estate AIFs
(percentages)



b) Leverage for euro area real estate investment funds
(percentages)



Sources: ECB Investment Funds Balance Sheet Statistics, AIFMD, ESRB calculations. EA stands for euro area.
 Notes: Data as at end-2022.

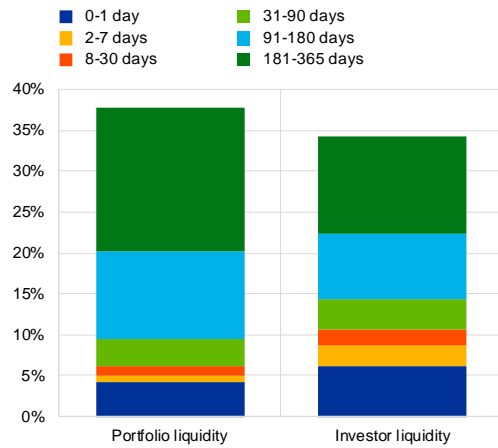


Chart 8

Liquidity mismatch (panel a) and liquidity shortage for EU-domiciled real estate AIFs as a percentage of NAV (panel b)

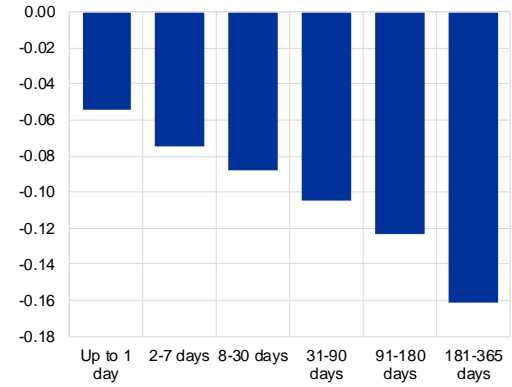
a) Liquidity mismatch

(percentages)



b) Liquidity shortage

(percentages)



Sources: AIFMD, ESRB calculations.

Note: Data at end-2022. AIFs which failed to report the portfolio liquidity profile or investor liquidity profile were removed from the sample.



3 Systemic risk and structural vulnerabilities of corporate debt and real estate funds

Investment funds present certain structural vulnerabilities through which they may trigger, transmit and/or amplify shocks to the broader financial system and thereby contribute to systemic risks. Structural vulnerabilities among investment funds include: (i) liquidity mismatch between fund investments and redemption rules; (ii) excessive use of leverage; and (iii) interconnectedness. Those vulnerabilities can contribute to financial stability risks, as they can transmit and/or amplify shocks that originate in other parts of the financial system or the real economy. This section briefly discusses those risks and vulnerabilities, focusing especially on corporate and real estate funds.

3.1 Liquidity mismatch

One of the main structural vulnerabilities of open-ended funds is the mismatch between the liquidity of fund investments and redemption terms of fund units. Structural liquidity mismatch can be described as the difference between the time it takes for investors in open-ended funds to receive their redemption payments and the time it takes the fund manager to liquidate fund holdings in an orderly manner (e.g. without substantially increasing transaction costs and without substantially affecting prevailing market prices) in order to satisfy the redemption requests.

Structural liquidity mismatch can amplify shocks by increasing redemption pressure and making it more difficult for fund managers to meet redemption requests, thus contributing to procyclical asset sales during stress periods. Shocks can be amplified when liquidity mismatch results in first-mover advantage.²⁸ Such first-mover advantage can amplify redemptions as investors may have incentives to redeem ahead of others to avoid internalising the redemption costs (i.e. where redeeming investors do not bear the full cost of redemption, leaving it instead to the remaining unit holders; see Annex A.1).²⁹ These incentives become stronger when it is easier for investors to redeem and when the funds are invested in illiquid assets, meaning assets which are difficult to value or less frequently traded during times of crisis. Moreover, the incentive to redeem early can become even more compelling when the funds have a large footprint in the underlying markets in which they invest, given that sales by the funds could contribute to a downward repricing in these markets. In combination, both exposure to illiquid asset classes and the importance of funds in such illiquid markets might exacerbate investor concerns that fund

²⁸ First-mover advantage occurs when, under certain circumstances, investors who redeem their shares first do so on more favourable terms than investors in the same fund who redeem late. It can occur if, for example, transaction costs for assets sold to meet redemptions are not properly allocated to redeeming investors. First-mover advantage can also arise where a fund's assets decline in value and investors are able to redeem before the fund's NAV adjusts to fully reflect those declines in value. An investor who redeems solely in anticipation of further market deterioration is not considered as benefiting from first-mover advantage. First-mover advantage may lead to pre-emptive runs. See FSB (2021), "**Policy Proposals to Enhance Money Market Fund Resilience – Final Report**", 11 October.

²⁹ See Chen, Q., Goldstein, I. and Jiang, W. (2010), "**Payoff complementarities and financial fragility: Evidence from mutual fund outflows**", *Journal of Financial Economics*, Vol. 97, Issue 2, August, pp. 239-262; and Goldstein, I., Jiang, H. and Ng, D.T. (2017), "**Investor flows and fragility in corporate bond funds**", *Journal of Financial Economics*, Vol. 126, Issue 3, December.



managers will sell the most liquid assets first, leaving the remaining unitholders invested in underlying assets that are already harder, or may become harder, to liquidate.

A higher liquidity mismatch makes it more difficult for funds to meet redemption requests in stress periods and can increase the likelihood of fund managers engaging in procyclical sales. The rationale is that fund managers may be more reluctant to dip into their liquidity buffers when those buffers are low. Furthermore, investors might overestimate the liquidity of the funds' assets and may not expect additional costs or difficulties in selling fund assets during stress periods. During those periods, if there is insufficient adequacy between redemption terms and conditions and the market liquidity of the underlying assets, and investors do not internalise the costs of selling portfolio assets, they may be more likely to redeem. In stressed market conditions, large redemptions in open-ended funds may spill over into the underlying markets (or markets for closely correlated assets), especially when those funds conduct considerable liquidity transformation.³⁰

Real estate funds and corporate bond funds often hold instruments with variable liquidity levels possibly making them vulnerable during stress periods, depending on the liquidity terms offered to their investors. Holdings of real estate funds invested in physical property can be considered inherently illiquid, while funds holding corporate bonds can run into liquidity problems in times of stress. In particular, CRE or less frequently traded corporate bonds are hard to value accurately during stress periods such as the COVID-19 market turmoil. This can amplify run incentives among investors, for instance in the expectation that managers would sell the most liquid assets first to meet redemption requests without passing on the cost of liquidity of the full portfolio.³¹ Collective redemptions among funds could contribute to a downward spiral in the prices of financial instruments or other assets. While for individual funds, redemptions are likely to be manageable, in the event of mass fire selling the combined liquidity demands could contribute to stress already present in the market. This could be particularly the case for funds that invest in assets in which the liquidity providers are unable to absorb large spikes in selling pressure. Similar dynamics were observed during the COVID-19 market turmoil in March 2020, when certain segments of the investment fund sector faced heavy redemption pressure and a deterioration of liquidity in the underlying markets. This prompted some fund managers to suspend redemptions in March 2020, mainly because of valuation uncertainty but in some cases also because of outflows.³²

³⁰ See Jiang, H., Li, Y., Sun, Z. and Wang, A. (2022), "**Does mutual fund illiquidity introduce fragility into asset prices? Evidence from the corporate bond market**", *Journal of Financial Economics*, Vol. 143, Issue 1, January, pp. 277-302.

³¹ See Goldstein, I., Jiang, H. and Ng, D.T. (2017), "**Investor flows and fragility in corporate bond funds**", *Journal of Financial Economics*, Vol. 126, Issue 3, December; and Downs, D.H., Sebastian, S., Weistroffer, C. and Woltering, R.O. (2015), "**Real estate fund flows and the flow-performance relationship**", the *Journal of Real Estate Finance and Economics*, Springer, Vol. 52(4), May, pp. 347-382.

³² See ESMA (2020), "**Recommendation of the European Systemic Risk Board (ESRB) on liquidity risk in investment funds**", ESMA34-39-1119, 12 November; Grill, M., Molestina Vivar, L. and Wedow, M. (2022), "**Mutual fund suspensions during the COVID-19 market turmoil – asset liquidity, liquidity management tools and spillover effects**", *Finance Research Letters*, Vol. 50, December.



3.2 Leverage

The use of leverage is another structural vulnerability in the investment fund sector.

Leverage can increase the selling pressure on funds following market declines, for example through deleveraging, forced sales to meet margin calls or covenants, liquidation of collateral, or defaults. Leverage amplifies several risks and vulnerabilities, including those related to liquidity mismatch (due to the higher potential liquidity demand stemming from collateral and margin calls, among other reasons), market risk (as a result of higher exposure to market volatility), counterparty risk (owing to increased counterparty exposure) and operational risk (as operations become more complex as the number of counterparties and derivative positions increases).

Leverage can include on-balance sheet exposure, such as borrowing and securities financing transactions, as well as off-balance sheet, or “synthetic”, leverage, which involves the use of derivatives.³³

Derivatives are often used for hedging, yet they can create synthetic leverage by allowing funds to become exposed to market fluctuations in underlying reference assets – such as stock prices, commodity prices or interest rates – that exceed the fund’s NAV. These transactions can either incur potential debt obligations under the derivative contract, such as with a swap or future, or lead to increased market exposure without incurring future obligations, such as when purchasing options or structured notes. Owing to these potential future obligations, the former may carry more risks for both parties to the contract.

The use of leverage by funds can contribute to systemic risk through several channels.

First, funds may be at a greater risk of financial distress, with possible implications for their counterparties, which include banks or brokers that have direct trading links with, or extended financing to, a leveraged fund. Second, a leveraged fund can spread risks to the financial system through interconnections with its investors and its funding of other financial intermediaries and businesses. Third, leveraged funds are more sensitive to changes in asset prices. Adverse movements in asset prices, margin calls and higher haircuts may force the funds to sell assets to obtain cash and deleverage, thus affecting other market participants through declining asset prices and increased margin calls.

Leverage can make corporate bond and real estate funds more vulnerable to shocks, especially when they invest in relatively illiquid assets.

Leveraged funds that also invest in less liquid assets, such as real estate funds and certain corporate bond funds, may be particularly vulnerable to shocks, especially if a liquidity mismatch induces redemption pressure. Additional vulnerabilities can materialise through, for instance, margin calls and difficulties in raising additional cash to cover such calls in times of stress. Leverage and illiquidity increase the vulnerability of parts of the real estate fund sector: some real estate funds may need to sell property assets over a relatively short period of time in response to adverse shocks, thus amplifying price pressures in the CRE market.³⁴ In addition, research shows that for UCITS bond funds, outflows are greater in leveraged bond funds during stressed periods and following a poor performance, compared with

³³ Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds (ESRB/2017/6).

³⁴ Daly, P., Moloney, K. and Myers, S. (2021), “Property funds and the Irish commercial real estate market”, *Financial Stability Notes*, No 1, Central Bank of Ireland, February.



unleveraged bond funds, which suggests that leverage amplifies fragility in bond funds.³⁵ Besides sales to accommodate redemption requests, leveraged funds may need to sell additional assets to keep leverage constant. Furthermore, leveraged funds need to deleverage proportionally more than unleveraged funds to cover margin calls and higher haircuts on leveraged positions during stress periods. In aggregate, this phenomenon can become self-reinforcing, as the more the market drops, the more leveraged funds would need to sell assets.

3.3 Interconnectedness

Investment funds can transmit shocks to other financial institutions or the real economy through their interconnectedness. Risk transmission channels fall broadly into two categories: direct and indirect. Direct transmission channels refer to instances where financial institutions are direct counterparties to investment funds through debt, equity or other contractual relationships. The main direct transmission channel is counterparty linkages, where shocks are transmitted through insolvencies or other ways of failing to fully honour payments of liabilities to counterparties. Indirect channels refer to common exposures to certain financial sectors, markets, assets and/or transactions, as well as the market's perception of the resilience of individual participants or the anticipation of what other market participants will do.³⁶ The main indirect transmission channel is that of market risk, where forced sales drive fluctuations in portfolio values (causing losses or insolvencies or triggering forced sales by other market participants) and/or the value of collateral in secured financial transactions (causing margin calls and potential liquidity spirals³⁷).

Through linkages with the real economy, funds can contribute to the procyclicality of the overall supply of credit. Investment funds, especially those investing in corporate bonds, provide an alternative source of funding to bank financing. As such, they can contribute to further fluctuations in overall debt levels.

³⁵ Molestina Vivar, L., Wedow, M. and Weistroffer, C. (2023), "**Burned by leverage? Flows and fragility in bond mutual funds**", Vol. 73, June, pp. 354-380.

³⁶ Risk of a self-fulfilling prophecy: market participants may attempt to be the first to sell in anticipation that others will react in the same way.

³⁷ For instance, the sale of market protection products (vanilla options or more exotic derivative products) may oblige banks to sell assets procyclically, driven only by the need to hedge the risks linked to the sale of those products.



4 Current regulatory measures to make corporate debt and real estate funds more resilient

The regulatory framework for investment funds contains tools to reduce systemic risk related to liquidity mismatch and the use of leverage.

The EU regulatory framework for investment funds comprises two main pillars: (i) the Directive on Undertakings for Collective Investment in Transferable Securities (UCITS)³⁸ alongside implementing directives and regulations; and (ii) the Alternative Investment Fund Managers Directive (AIFMD)³⁹ and related regulations. These Directives set out investment, governance, risk management and conduct rules for investment funds and their managers, though there are some important differences between the individual parts of the framework. An important difference relates to the addressee of the Directives, as the AIFMD targets fund managers, while the UCITS Directive is more product-focused. Both the AIFMD and the UCITS Directive contribute to financial stability by reducing vulnerabilities at the individual investment fund level. This will be further strengthened once the recent provisional agreement on the review of the Directives is ultimately adopted and transposed into national law.⁴⁰ Robust risk management strategies applied throughout the life of a fund (see Box 2) make the sector more resilient to adverse shocks and therefore help to mitigate systemic risk, including guidance for liquidity stress testing for UCITS and AIFMD.⁴¹ Rules at the national level might further complement the European framework (e.g. by requiring the use of a broader set of LMTs).⁴²

Box 2

Risk management throughout the life of a fund

In simplified terms, the risk management framework for investment funds can be broken down into three different phases: inception/design, ongoing management and crisis/emergency situations (see Figure 1).

First, in the inception/design phase, the fund manager decides on the types of assets to invest in, the (potential) use of and limits on leverage and the fund's overall liquidity profile. Under the current regulatory requirements, the fund manager must ensure that the redemption profile is consistent with the liquidity of the underlying assets and must set a redemption frequency that matches the

³⁸ Directive 2009/65/EC of the European Parliament and of the Council of 13 July 2009 on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) (OJ L 302, 17.11.2009, p.32).

³⁹ Directive 2011/61/EU of the European Parliament and of the Council of 8 June 2011 on Alternative Investment Fund Managers and amending Directives 2003/41/EC and 2009/65/EC and Regulations (EC) No 1060/2009 and (EU) No 1095/2010 (OJ L 174, 1.7.2011, p. 1).

⁴⁰ See Directorate-General for Financial Stability, Financial Services and Capital Markets Union (2023), "Commission welcomes political agreement on enhanced regulatory framework for investment funds", news article, European Commission, 20 July; and Council of the EU (2023), "Capital market union: provisional agreement reached on alternative investment fund managers directive and plain-vanilla EU investment funds", press release, 20 July.

⁴¹ ESMA (2020), "Guidelines on liquidity stress testing in UCITS and AIFs", 16 July.

⁴² See, for example, Commission de Surveillance du Secteur Financier, "Circular CSSF 19/733", 20 December 2019, implementing the IOSCO recommendations and good practices on liquidity risk management for undertakings for collective investment into Luxembourg regulations.



liquidity of the underlying assets. In jurisdictions in which notice periods are available, fund managers can use these to manage redemption requests and relieve some of the immediate pressure to sell the underlying assets. Furthermore, the fund manager can design limits on exposures, asset concentration and eligible assets beyond regulatory requirements to improve the portfolio's liquidity. The fund manager should also consider liquidity needs stemming from the use of derivatives and security financing transactions, as these can give rise to margin calls. Based on these design features, the fund manager should also develop liquidity stress tests and specify, in the fund prospectus, which LMTs can be used both in the ongoing management of the fund and in emergency situations.

In the ongoing management of the fund phase, the fund manager should apply the conditions set in the inception/design phase and engage its risk management framework. In this phase, the fund manager is expected to use liquidity stress testing for individual funds as a means of scrutinising liquidity management practices in respect of outcomes that appear unlikely but are nonetheless possible.

Furthermore, in jurisdictions in which they are available, fund managers can use anti-dilution LMTs (e.g. swing pricing, dual pricing, redemption fees and anti-dilution levies) to effectively pass on the costs to transacting investors, thus ensuring the fair treatment of investors while reducing first-mover advantage. Fund managers may also make use of redemption gates to restrict fund outflows to a certain percentage. In some cases, redemption gates are part of the regular redemption policy, meaning that outflows at the given redemption frequency are always restricted.

There is no "one-size-fits-all" solution when it comes to the use of LMTs, owing to the heterogeneous nature of the investment fund sector and the dynamic nature of liquidity. Asset liquidity can vary over time, affecting the cost and/or time it takes to liquidate the position held in the portfolio. In certain market segments, liquidity can occasionally disappear in stressed market conditions. Nevertheless, responsible entities are expected to exercise their sound professional judgement in the best interest of investors. Quality liquidity management on a daily basis is a key concern for funds that offer frequent redemption opportunities for investors.⁴³

In the crisis/emergency situations phase, the fund manager should immediately address the liquidity risk if the situation requires it. When liquidity conditions in the underlying markets deteriorate suddenly, the fund manager can apply tools that limit investor outflows and/or the need to sell the underlying assets at distressed prices. In particular, they can use redemption gates/deferrals, anti-dilution LMTs or adjust the parameters of these LMTs, switch to in-kind redemptions, use side pockets, or even suspend subscriptions and/or redemptions to mitigate pressing liquidity needs.

In certain situations, relevant authorities may also intervene, either in crisis situations or during the ongoing management phase. NCAs have authority to request suspension of redemptions when

⁴³ See IOSCO (2018), "[Recommendations for Liquidity Risk Management for Collective Investment Schemes – Final Report](#)", February; and IOSCO (2018), "[Open-Ended Fund Liquidity and Risk Management – Good Practices and Issues for Consideration – Final Report](#)", February.



doing so would be in the public interest. Authorities can also enforce Article 25 of AIFMD to restrict leverage if its use poses a substantial risk to the stability and integrity of the financial system.

Figure 1
Risk management through the life of a fund

At the discretion of the fund manager			Intervention by authorities
Inception/design phase of the fund	Ongoing management of the fund	Crisis/emergency situations	Ongoing management or crisis/emergency situations
<ul style="list-style-type: none"> • Notice period • Redemption/dealing frequency • Asset concentration requirements • Leverage restrictions • Eligible asset requirements • Risk management requirements • Valuation policies and procedures 	<ul style="list-style-type: none"> • Stress testing • Reporting requirements • Anti-dilution tools (redemption fees, anti-dilution levies, dual pricing and/or swing pricing) • Redemption gates • (Liquidity) risk management 	<ul style="list-style-type: none"> • Redemption in kind • Anti-dilution tools (redemption fees, anti-dilution levies, dual pricing and/or swing pricing) • Side pockets • Lines of credit • Deferred redemptions • Redemption gates • Suspension of redemptions 	<ul style="list-style-type: none"> • Leverage restrictions (AIFMD Article 25) • Suspension of redemptions

Source: ESRB.

4.1 Liquidity and leverage risk mitigants in the UCITS Directive

UCITS funds must comply with stringent investing requirements that mitigate both leverage risk and liquidity mismatch. UCITS funds must invest primarily in eligible assets, clarified in the Eligible Assets Directive⁴⁴. UCITS funds must invest in transferable securities and other financial instruments that are sufficiently liquid so as not to compromise the fund's ability to redeem or repurchase units at the request of unitholders, although under some scenarios the underlying assets may at times be less liquid than expected.⁴⁵ Broadly speaking, the UCITS Directive provides more regulatory requirements at the fund level to manage liquidity risks than the AIFMD. Management companies⁴⁶ must employ an appropriate liquidity risk management process so as to ensure that each UCITS fund they manage is able to honour its obligation to redeem units at a unitholder's request in all foreseeable circumstances, including stressed conditions. A UCITS fund management company is advised to conduct liquidity stress testing on a quarterly basis. This

⁴⁴ **Commission Directive 2007/16/EC of 19 March 2007 implementing Council Directive 85/611/EEC on the coordination of laws, regulations and administrative provisions relating to undertakings for collective investment in transferable securities (UCITS) as regards the clarification of certain definitions**, (OJ L 79, 20.3.2007, p. 11).

⁴⁵ For example, this risk materialised recently at H2O Asset Management and with the Woodford Equity Income Fund, which succumbed to the vicious circle of holding illiquid securities, namely privately placed equities and bonds – usually of a relatively low credit quality – that are infrequently traded and offered daily redemption. Both cases were fund-specific and involved conflict of interest problems and governance and risk management issues. See Thompson, J.(2019), "**H2O, Woodford and GAM crises highlight liquidity risk**", Financial Times (ft.com), June 29.

⁴⁶ UCITS management companies may also include self-managed UCITS.



testing must take place throughout all stages of the fund's life. It must assess the liquidity risk of the UCITS fund under a range of different conditions, including normal and stressed plausible conditions, so as to gauge the potential impact on the funding assets and overall liquidity of the UCITS fund and determine the necessary follow-up action. The management company must also be able to assess, for each UCITS fund it manages, the exposure to market, liquidity and counterparty risks, and to all other risks, including operational risks. The management company must assess, monitor and periodically review the adequacy and effectiveness of the risk management policy and the level of compliance with the risk management policy.

UCITS funds are also subject to leverage limits. They can borrow only on a temporary basis and up to 10% of their total assets. UCITS funds that rely on the commitment approach to calculate their leverage can use derivatives only up to 100% of their NAV, effectively limiting the leverage ratio to a factor of two. UCITS funds using more sophisticated investment strategies may use the Value at Risk (VaR) approach (absolute or relative).⁴⁷ The VaR approach does not directly limit a UCITS fund's leverage, but seeks to measure and control potential losses due to market risk. As a result, the VaR approach may allow for higher leverage compared with the commitment approach, depending on the volatility or correlation of the underlying assets.

4.2 Liquidity and leverage risk mitigants in the AIFMD

The AIFMD does not require AIFs to invest in liquid assets, though compared with the UCITS Directive it does provide more detailed requirements on the risk management framework.

While there are no detailed rules on the liquidity of eligible assets, alternative investment fund managers (AIFMs) must ensure that the investment strategy, liquidity profile and redemption policy are consistent for each AIF they manage. An AIFM must have an appropriate liquidity management framework in place, enabling them to monitor the liquidity risk of their AIFs and ensure that the liquidity profile of the investments of the AIF complies with the fund's underlying obligations. Furthermore, an AIFM must regularly conduct stress tests, under normal and exceptional liquidity conditions, to assess and monitor the liquidity risk of the AIFs. These obligations are supplemented by detailed Level 2 rules on liquidity management.⁴⁸ The AIFMD contains similar provisions to those for pre-investment due diligence in UCITS (outlined above). Under the AIFMD, an AIFM, when managing their fund, must ensure that the risks associated with each investment position held by the fund and the overall effect of those risks on the fund's portfolio can be properly identified, measured, managed and monitored on an ongoing basis, including through the use of appropriate stress-testing procedures.

⁴⁷ For basic investment strategies, UCITS should use the "commitment approach", whereby derivatives exposures are converted into equivalent positions. The resulting "global exposure" comprises equivalent positions after netting and reinvested cash collateral, which must not exceed the fund's total net asset value (NAV). For more complex investment strategies, UCITS should use either the absolute or relative value at risk (VaR) approach, depending on the type of investment strategy used. Under the absolute VaR approach, funds must comply with a maximum VaR limit of 20% of their NAV, calculated over a one-month holding period at a 99% confidence interval. UCITS funds may further opt to report relative VaR, where maximum VaR needs to be less than twice the VaR of the reference portfolio. See also European Central Bank (2015), "**Synthetic leverage in the investment fund sector**", *Financial Stability Review*, May.

⁴⁸ See **Commission Delegated Regulation (EU) No 231/2013 of 19 December 2012 supplementing Directive 2011/61/EU of the European Parliament and of the Council with regard to exemptions, general operating conditions, depositaries, leverage, transparency and supervision** (OJ L 83, 22.3.2013, p.1).



While the AIFMD does not prescribe specific leverage limits, AIFMs and competent

authorities can introduce them. AIFMs are required to set a maximum level of leverage for each AIF. Substantially leveraged AIFs, i.e. AIFs with an exposure exceeding 300% of their NAV, are also subject to enhanced reporting requirements. When it is deemed necessary to ensure the stability and integrity of the financial system, competent authorities may impose additional limits to the level of leverage that AIFMs can employ, in accordance with Article 25 of the AIFMD (see Box 3).

Box 3

AIFMD Article 25

Under Article 25 of the AIFMD, competent authorities may, when required in order to ensure the stability and integrity of the financial system, impose additional leverage limits or impose further restrictions on the management of AIFs. Article 25 of the AIFMD can be applied to limit the extent to which the use of leverage contributes to the build-up of systemic risk in the financial system or the risk of disorderly markets. At the EU level, ESMA, after taking into account the advice of the ESRB, may determine that the leverage used by an AIFM, or by a group of AIFMs, poses a substantial risk to the stability and integrity of the financial system, and may issue advice to competent authorities specifying the remedial measures to be taken.

The use of AIFMD Article 25 from a financial stability perspective has been reinforced by the ESMA Guidelines⁴⁹ in response to the 2017 ESRB Recommendation to address liquidity and leverage risks in investment funds⁵⁰. The ESRB requested ESMA to provide guidance on the framework for assessing the contribution made by leverage within the AIF sector to the build-up of systemic risk in the financial system, and to provide guidance on the design, calibration and implementation of macroprudential leverage limits. Drawing from the IOSCO⁵¹ framework, the ESMA Guidelines implement a common set of indicators to assess leverage-related systemic risks on a regular basis, including:

- The risk of market impact, when the size of the positions of an AIF, or a group of AIFs, is sufficient to move the market.
- The risk of forced sales, when the activities of an AIF, or a group of AIFs, could contribute to a downward spiral in the prices of financial instruments or other assets in a manner that threatens the viability of such financial instruments or other assets.
- The risk of direct spillover to financial institutions, in the sense that the exposure of an AIF, or several AIFs, could constitute an important source of market, liquidity or counterparty risk to a financial institution.

⁴⁹ ESMA (2021), “[Guidelines on Article 25 of Directive 2011/61/EU](#)”, 23 June.

⁵⁰ [Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds \(ESRB/2017/6\)](#). On 2 September 2019, ESMA published the [Final Report on Guidelines on Liquidity Stress Testing in UCITS and AIFs](#) in response to ESRB Recommendation C.

⁵¹ IOSCO (2019), “[Recommendations for a Framework Assessing Leverage in Investment Funds – Final Report](#)”, December.



- The risk of interruption to direct credit intermediation, which refers to the risk that AIFs contributing to the funding of the real economy deleverage during a downturn, thus increasing the procyclicality of the overall supply of credit.

While the risks addressed by AIFMD Article 25 must relate to a fund’s use of leverage, that is not to say that leverage is the only concern. For example, the risk of forced sales relates especially to the combination of leverage and liquidity mismatches, e.g. the risk that unexpected liquidity demands or redemptions may prompt disorderly sales of assets. Imposing leverage limits may reduce liquidity demands (margin calls, for example, in the case of synthetic leverage) and thus reduce the impact of a “forced” deleveraging triggered by such demands. Moreover, the ESMA Guidelines encourage competent authorities to limit procyclicality and to impose temporary leverage limits to curtail any procyclical behaviour from an AIF, or group of AIFs, such as when an AIF contributes to excessive credit growth or the formation of excessive asset prices. These limits should be released when there is a favourable change in market conditions or when the AIF’s behaviour ceases to be procyclical.

The ESMA Guidelines also call upon NCAs to assess the risks posed by groups of funds with common exposures, such as real estate funds and corporate bond funds. Where the NCAs determine that a group of AIFs of the same type and with similar risk profiles may collectively pose leverage-related systemic risks, they should apply leverage limits in a similar or identical manner to all AIFs in that group of AIFs. Typically, real estate funds and corporate bond funds are among the groups of funds which could pose systemic risk.

Based on their analysis of end-of-year data for 2021, NCAs generally consider that real estate funds pose low risks on an individual basis, owing to their limited use of leverage or size, although they could become more systemically relevant in jurisdictions where groups of AIFs on aggregate have a large market footprint. This combines with the risk of potential liquidity mismatches in jurisdictions with a high share of funds offering daily redemption. While real estate funds have been stable in the past, a combination of liquidity mismatches, transmission channels to financial institutions such as insurers and pension funds, and a large market footprint could make them systemically relevant.

As for corporate debt funds, certain jurisdictions identified potential transmission channels through large aggregate exposure to corporate bonds as well as structured products. Although their assets are less liquid, such funds typically offer daily redemptions and are interconnected with institutional investors such as insurance companies, pension funds and banks.

In November 2022, the Central Bank of Ireland announced plans to impose leverage limits on Irish real estate funds under AIFMD Article 25 (see also Box 5).⁵² Meanwhile, other authorities have announced leverage measures (or already have leverage measures in place) through other means, such as Germany – the largest jurisdiction for real estate funds – where borrowing limits have existed for some time. Further, according to an ESRB survey among its member institutions, most EU jurisdictions have leverage limits in place for at least some types of real estate funds.⁵³ The

⁵² Central Bank of Ireland (2022), “[The Central Bank’s macroprudential policy framework for Irish property funds](#)”.

⁵³ See ESRB (2021), “[EU Non-bank Financial Intermediation Risk Monitor 2021](#)”, No 6, August.



types of leverage limits – including which investors they apply to (professional, retail or both) – vary between EU jurisdictions.

4.3 Upcoming changes to the regulatory framework

Once adopted, the revised AIFMD and UCITS Directive will enhance the regulatory and supervisory framework for investment funds from a financial stability perspective. In 2021 the European Commission adopted a legislative proposal to amend the two Directives, aiming to improve the functioning of the investment fund market in the EU and to tackle vulnerabilities within the asset management sector that could destabilise the wider financial system.⁵⁴ The Council of the EU reached an agreement on a general approach in June 2022, and the European Parliament agreed its position in February 2023.⁵⁵ In July 2023 the European Parliament and the Council reached a provisional agreement on the review of both Directives, including the need to make LMTs more readily available, with new requirements for managers to enable the activation of these instruments.⁵⁶ The new set of rules, if adopted, will make a range of LMTs available for managers of open-ended funds (both UCITS and AIFs) across the EU. These tools include suspension of redemptions, redemption gates, notice periods, redemption fees, swing pricing, dual pricing, anti-dilution levies, redemptions in kind and side pockets. Apart from having authority to suspend redemptions, fund managers will be required to have additional LMTs in place that are suited to their fund's investment strategy, liquidity profile and redemption policy. ESMA will develop draft regulatory technical standards and guidelines to ensure the coherent application of the LMTs.

The provisional agreement addresses data deficiencies in the investment fund sector, and will allow for more comprehensive risk monitoring and analysis. To this end, a harmonised reporting obligation under the UCITS Directive will be introduced. ESMA also will be tasked with amending regulatory reporting templates for AIF managers. In addition, ESMA will draw up a report alongside other ESAs and the ECB with the aim of making the reporting framework for asset managers more efficient. The report will focus on reducing areas of duplication and inconsistency in reporting frameworks and on standardisation and efficient sharing and use of data already reported at EU or national level.

⁵⁴ See [Proposal for a Directive of the European Parliament and of the Council amending Directives 2011/61/EU and 2009/65/EC as regards delegation arrangements, liquidity risk management, supervisory reporting, provision of depositary and custody services and loan origination by alternative investment funds](#), 25 November 2021, COM/2021/721 final, 2021/0376 (COD).

⁵⁵ [Proposal for a Directive of the European Parliament and of the Council amending Directives 2011/61/EU and 2009/65/EC as regards delegation arrangements, liquidity risk management, supervisory reporting, provision of depositary and custody services and loan origination by alternative investment funds](#), 21 June 2022; and the [Report of the Committee on Economic Affairs of the European Parliament on the proposal for a directive of the European Parliament and of the Council amending Directives 2011/61/EU and 2009/65/EC as regards delegation arrangements, liquidity risk management, supervisory reporting, provision of depositary and custody services and loan origination by alternative investment funds](#), 2 February 2023.

⁵⁶ Directorate-General for Financial Stability, Financial Services and Capital Markets Union (2023), "[Commission welcomes political agreement on enhanced regulatory framework for investment funds](#)", *news article*, European Commission, 20 July; and Council of the EU (2023), "[Capital market union: provisional agreement reached on alternative investment fund managers directive and plain-vanilla EU investment funds](#)", *press release*, 20 July.



4.4 Areas for improvement in the regulatory framework for investment funds

The regulatory framework for investment funds includes several tools capable of targeting leverage, liquidity mismatch and interconnectedness. While this framework has contributed to the stability of the financial system, it does come with certain constraints, as highlighted by the ESRB⁵⁷, including the insufficient availability of LMTs in many EU jurisdictions to help cope with redemption pressures amid stressed market conditions and data gaps that impede the monitoring of systemic risk. However, these issues will be addressed through the revised AIFMD and UCITS Directive.

Nevertheless, recent episodes of stress have revealed certain areas of the framework in need of further improvement. Recent episodes of turbulence involving investment funds have shown that investment funds are prone to transmit and amplify shocks within the financial markets (e.g. market turmoil in the onset of the COVID-19 pandemic, or stress in the UK gilt market). In response to this risk, the regulatory framework could be strengthened to address the build-up of vulnerabilities and risks related to liquidity mismatch, leverage and the interconnectedness of funds with other entities in the financial system and the underlying markets. Notably, fund managers are already able to internalise some of these dimensions. For example, during periods of low market liquidity, managers can use cash rather than sell assets to honour redemptions, thus reducing the risk of amplifying price falls. However, fund managers are not required to internalise ex ante their market impact, or their contribution to shock transmission. Rather, they are required to prioritise their own investors, and may in some instances be concerned about the reputational damage they might sustain were they to use certain LMTs. Further, the degree of complexity and sheer volume of information required can make it difficult for fund managers to assess their market impact.

More detailed policy mapping can help identify areas of the regulatory framework that could be improved to make the wider system more resilient. Table 1 provides an overview of the regulatory framework from a financial stability perspective. It illustrates policy tools (existing and envisaged in the provisional agreement on the review of the AIFMD and the UCITS Directive) that target the following financial stability risks related to the structural vulnerabilities of liquidity mismatch, leverage and interconnectedness:⁵⁸

- (i) potential impact on underlying markets of simultaneous selling by investment funds;
- (ii) risks relating to forced sales of the underlying assets and contribution to downward price spirals;
- (iii) risk of spillover to other financial institutions; and
- (iv) risk of interruption in credit intermediation.

⁵⁷ See the ESRB's letters to the co-legislators on this topic: "[Letter to the European Parliament on the AIFMD Review](#)", 23 March 2022; and "[Letter to the Council Working Party on the AIFMD Review](#)", 23 March 2022.

⁵⁸ See ESMA (2021), "[Guidelines on Article 25 of Directive 2011/61/EU](#)", 23 June.



The table also considers that the possibility of fund vulnerabilities accumulating within the sector when the policy tools are not used as ex ante instruments with a time-varying dimension. Finally, the table considers whether the various policy tools can be deployed by fund managers (on the instruction of the authorities) to benefit financial stability. In this regard sufficient guidance should be provided and steps taken to counteract inaction bias on the part of fund managers.

The table does not assess the effectiveness of policy tools in addressing financial stability risks. It indicates whether a policy option primarily targets a systemic risk, whether it is not there to target a systemic risk, but has beneficial side effects to financial stability, or whether it has no relation to systemic risk. For example, valuation policies and procedures are not intended to target systemic risk. Nevertheless, having good valuation policies and procedures in place has beneficial side effects from a financial stability perspective, as it increases certainty about asset prices, thus helping to mitigate fire sale risk and spillover to other financial institutions. A suspension of redemption policy can be imposed by authorities to address systemic risk. By limiting the outflow from funds, this measure specifically targets the potential impact of funds on the underlying market and reduces the risk of fire sales.



Table 1

The regulatory framework from a financial stability perspective – existing policies and policies envisaged in the provisional agreement on the review of the AIFMD and the UCITS Directive

	Systemic risks related to liquidity mismatch, leverage and interconnectedness				Build-up of vulnerabilities	Inaction bias on the part of fund managers	
	Potential impact on underlying markets	Risks of fire sales of the underlying assets and contribution to downward price spirals		Risk of spillover to other financial institutions			Risk of interruption in credit intermediation
		From redemptions	From margin calls				
Existing policies							
Asset diversification requirements (UCITS)	Light	Light	None	Light	None	None	
Eligible asset requirements (UCITS)	None	Light	Light	None	Light	None	
Redemption terms	Light	Dark	None	None	None	None	
Valuation policies and procedures	None	Light	Light	Light	Light	None	
Credit lines/temporary borrowing	None	Light	Dark	None	None	None	
Stress testing	Light	Light	Light	Light	Dark	Light	
Leverage limits (including if imposed by authorities)	Light	Light	Dark	Light	Light	Dark	
Suspension of redemptions (including if imposed by authorities)	Dark	Dark	None	None	None	Light	



	Systemic risks related to liquidity mismatch, leverage and interconnectedness				Build-up of vulnerabilities	Inaction bias on the part of fund managers	
	Potential impact on underlying markets	Risks of fire sales of the underlying assets and contribution to downward price spirals		Risk of spillover to other financial institutions			Risk of interruption in credit intermediation
		From redemptions	From margin calls				
Other LMTs							

Policies envisaged in the provisional agreement on the review of the AIFMD and the UCITS Directive

Greater availability of LMTs							
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Legend: ■ Policy targets risk; ■ Policy does not set out to target risk, but has potentially beneficial side effects in relation to risk; ■ Policy does not target risk.

Source: ESRB.

Notes: The table provides an overview of the regulatory framework from a financial stability perspective. It illustrates policy tools (existing and envisaged in the provisional agreement on the review of the AIFMD and the UCITS Directive) that target financial stability risks related to liquidity mismatch, leverage and interconnectedness. It also considers the potential build-up of vulnerabilities in the absence of policy tools and whether a potential inaction bias on the part of fund managers would be addressed. Indirect second-round effects are not considered. The table does not assess the effectiveness of the policy tools in addressing financial stability concerns.



5 Further work on the policy framework for investment funds

This section outlines the options for further policy work to increase the resilience of investment funds that invest in assets which are either inherently illiquid or might become illiquid in times of stress. An important aspect to bear in mind when designing a policy framework for investment funds is the heterogeneity of the sector, in the sense that wide range of investment strategies and techniques are used, there is a diversity of legal and organisational forms, and fund investors have different needs. This challenge can be partially mitigated by focusing on the specific systemic vulnerabilities present in corporate bond and real estate funds and on areas of the regulatory framework that can be strengthened. The ESRB's work in this area complements international initiatives, notably through the work of the Financial Stability Board (FSB) and IOSCO (see Box 4).

Box 4

Revisions to the 2017 FSB Recommendations

In December 2022, the FSB published its assessment of the effectiveness of the FSB's 2017 Recommendations in addressing structural vulnerabilities related to liquidity in open-ended funds.⁵⁹ The report concluded that authorities had made meaningful progress in implementing the 2017 FSB Recommendations, but that recent experience, including during the March 2020 market turmoil, has produced new insights into liquidity management challenges in certain segments of the open-ended fund sector. The FSB Recommendations were found to remain broadly appropriate, but would be made more effective by enhancing clarity and specificity on the policy outcomes they seek to achieve. The report suggested specific revisions to the Recommendations and the FSB and IOSCO are now carrying out follow-up work based on the findings of the assessment, including the revision of the FSB's 2017 Recommendations.

The analysis found that there has been no measurable reduction in the degree of structural liquidity mismatch. To further address this concern, the draft FSB Recommendations should require the redemption terms of the funds to be consistent with the liquidity of their asset holdings. Funds would be classified into three "buckets", depending on whether they invest in "liquid", "less liquid", or "illiquid" assets. The Recommendations should specify which factors managers and authorities ought to consider when determining asset liquidity, including quantitative (e.g. bid-ask spreads) and qualitative (e.g. credit quality) factors.

- For funds that invest mainly in assets that are liquid in normal and stressed market conditions, daily dealing would remain appropriate.

⁵⁹ See FSB (2022), "[Assessment of the effectiveness of the FSB's 2017 Recommendations on Liquidity Mismatch in Open-Ended Funds](#)", December.



- In contrast, funds that allocate a significant proportion of their portfolio to assets that are illiquid, even in normal market conditions, should create and redeem shares at lower frequency than daily and/or require long notice or settlement periods.
- Lastly, funds that mainly invest in less liquid assets and that are susceptible to illiquidity in stressed market conditions may continue to offer daily dealing if they are able demonstrate to the authorities that they can implement anti-dilution LMTs. Alternatively, they should consider and use measures to reduce the liquidity offered to fund investors.

The draft FSB Recommendations should also aim to promote greater availability and use of LMTs and other liquidity management measures, and should assign specific roles to fund managers and authorities in implementing them:

- Authorities should ensure that a broad set of LMTs are available and used in both normal and stressed market conditions in order to mitigate potential first-mover advantage, ensure that investors bear the costs of liquidity associated with fund subscriptions and redemptions, and arrive at a more consistent approach to the use of LMTs by managers.
- The draft FSB Recommendations should pay close attention to anti-dilution LMTs so as to pass on liquidity costs to redeeming shareholders in both normal and stressed market conditions.
- Quantity-based LMTs would be used particularly in stressed market conditions. Such tools and measures would include suspensions, redemption gates, in-kind redemptions, side pockets and borrowing to accommodate redemptions.

The work on LMTs is being carried out alongside IOSCO, which will review and, as the case may be, amend its IOSCO 2018 Recommendations⁶⁰ to provide guidance on the use of LMTs and other liquidity management measures, particularly in stressed market conditions. IOSCO guidance would not be expected to cover authorities' power to provide direction regarding the use of LMTs and other liquidity management measures by open-ended funds in stressed market conditions. The implementation of such direction would be left to the discretion of individual jurisdictions, as in the existing IOSCO Recommendations.

The timelines for reviewing the FSB Recommendations and the IOSCO Recommendations are similar. The FSB and IOSCO both published a consultation report in July 2023 seeking specific feedback to inform the final amended Recommendations and Guidance.⁶¹ These documents are expected to be published in late 2023.

⁶⁰ IOSCO (2018), "**Recommendations for Liquidity Risk Management for Collective Investment Schemes – Final Report**", February.

⁶¹ FSB (2023), "**Addressing Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds – Revisions to the FSB's 2017 Policy Recommendations. Consultation report**", 5 July; and IOSCO (2023), "**Anti-dilution Liquidity Management Tools – Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes – Consultation Report**", July.



5.1 Policy objective, scope and principles

The policy framework for investment funds should reinforce financial stability and address the potential build-up of systemic risk within the sector. To prevent risks from accumulating and transmitting to the broader financial system, policy should target structural fund vulnerabilities, transmission channels (interconnectedness and contagion), and amplifiers associated with investment funds, which are part of an ecosystem of actors present within the market. Risks and vulnerabilities in the financial system cannot be addressed with a policy framework that targets only investment funds. However, the resilience of funds can be increased to mitigate their impact on those risks or to prevent the transmission of risk via funds. The enhanced policy framework should aim to: (i) introduce tools applicable to investment funds likely to contribute to systemic risk, allowing them to internalise their impact on the wider system; and (ii) provide guidance on the application of such tools, especially when the instruments available at fund level are not enough to preserve financial stability at the aggregate level. More specifically, the policy options could:

- require investment funds to have specific characteristics or features (e.g. minimum notice periods or closed-end fund structure);
- introduce specific instruments to be used by fund managers in both day-to-day fund management and in response to exceptional events, supplemented by guidance on their operationalisation;
- introduce specific instruments to be used by authorities when needed, where the fund managers have insufficient tools, or no tools at all, at their disposal (i.e. to address collective action problems or the cyclical dimension of systemic risk).

In addition to this overall objective, the policy options considered should adhere to several principles. Those principles should also guide the next phase of the work and help to assess whether policy options should be developed into policy proposals:

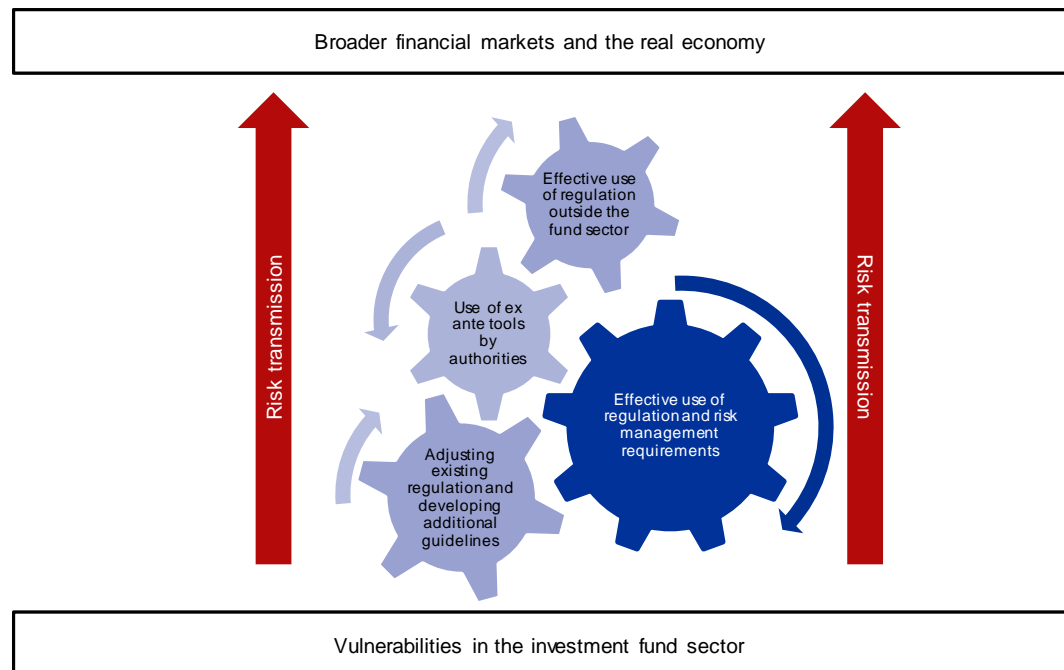
- Consider the wider impact on the financial system, avoid spillover effects and a simple transfer of liquidity risk to other sectors.
- Consider potential regulatory arbitrage between different non-bank entities (non-regulated investment mandates, family offices, etc.) and regulatory arbitrage between the EU and other jurisdictions.
- Build resilience in the investment fund sector to reduce the need for intervention by central banks and other authorities in times of stress, as well as related moral hazard risk.
- Address liquidity needs arising not only from increased redemptions, but also margin calls, which might increase in times of stress.
- Consider both ex ante and crisis management tools, prioritising the former to reduce the build-up of vulnerabilities.
- Ensure measures are operationally effective, which would require high-level rules on how the policy options could be applied.



- Target investment funds and do not seek to address broader risks that could be addressed more effectively at source, outside the fund sector.

The interplay between the different elements of the regulatory framework that targets investor protection and systemic risks provides safeguards for financial stability (see Figure 2). Investor protection regulation addresses mainly vulnerabilities related to fund-level risk management, but also contributes to financial stability aims. Tools that target systemic risk can be more effective when considering interconnections and collective actions within the investment fund sector and with the wider financial system. The interplay between the different elements of the regulatory framework is able to mitigate risk transmission to broader financial markets and the real economy.

Figure 2
Financial stability safeguards



Source: ESRB.



It is important to note that market risk and the amplification of shocks are not caused by investment funds alone. Structural vulnerabilities, such as wider concerns surrounding market liquidity, the use of leveraged investment strategies or capital market investment flows generally encompass more market participants than just investment funds, and systemic risk is posed by a range of different actors and activities. Therefore, these concerns need to be considered from a wider perspective, with tools or practices that apply to all market participants, such as margining practices, short-selling restrictions and/or circuit-breakers⁶², but that also specifically address the vulnerabilities present in investment funds. Like other market participants, investment funds are subject to market risk and can be part of the wider risk transmission channel through financial markets. However, unlike bank depositors, fund investors must bear the market risk of their investments, i.e. they are typically not guaranteed a return on (or indeed the return of) their investment. The aim of building resilience on an ex ante basis is not to protect investors from potential losses, but to inhibit the risk transmission mechanism and reduce the amplification of shocks that investment funds may cause.

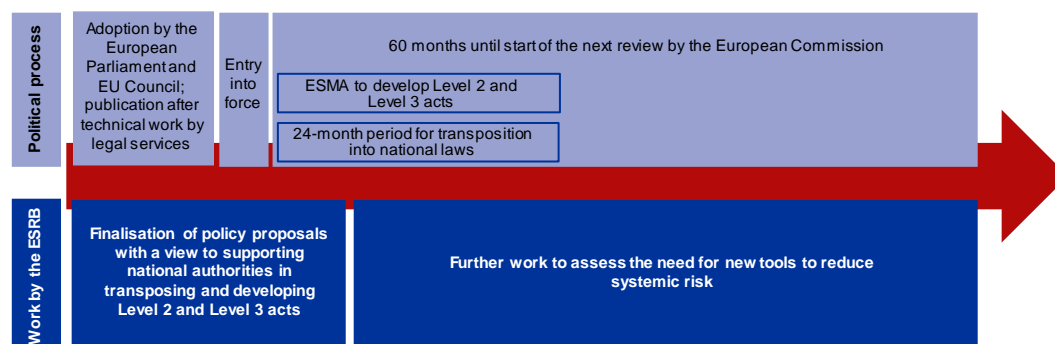
5.2 Policy reform options

Further policy work to increase the resilience of investment funds that invest in assets which are either inherently illiquid, or might become illiquid in times of stress, might include work to adapt existing instruments and/or develop new ones. The provisional agreement on the review of the AIFMD and the UCITS Directive provides a platform for additional consideration of systemic risk concerns in investment fund regulation. Further work by the ESRB will progress in two steps (see Figure 3). First, it will focus on the adaptation of the tools already present within the regulatory framework to better serve financial stability purposes. During this stage, the ESRB will aim to develop policy proposals to support national authorities when transposing the reviewed Directives into national law. The outputs from this stage will also serve to inform the development of relevant Level 2 and Level 3 EU acts as well as national supervisory guidelines. Second, over the medium term, the ESRB will assess the need for new tools to reduce systemic risk. This medium-term work would also inform possible future reviews of the AIFMD and the UCITS Directive. When carrying out this work, the ESRB will be mindful of, and contribute to, international discussion in this area.

⁶² See an [explanation of circuit-breakers](#) on the Investor.gov website of the US Securities and Markets Commission.



Figure 3
Timeline for ESRB policy work on investment funds



Source: ESRB.
 Note: The figure is stylised and not to scale.

5.2.1 Adapting available tools

As a first line of defence, adjustments to the risk management framework may be effective in making funds more resilient and mitigating the transfer of liquidity risks to the wider financial sector. Following on from Table 1, Table 2 further below maps the proposed adjustments and financial stability considerations.

Making redemption terms more closely aligned with the liquidity of the underlying assets

Better alignment between asset liquidity and redemption terms may be effective in reducing the systemic vulnerabilities of real estate funds and other funds that invest in inherently illiquid assets. Current regulation already requires that the liquidity profile of the investments be aligned with the redemption terms. This regulatory requirement should be made more restrictive for funds that invest in inherently illiquid assets, such as real estate funds. This can be achieved via a set of harmonised minimum requirements for redemption terms, based on the risks that funds face owing to their investment strategies, such as by introducing longer notice periods and lower redemption frequency (see Box 5). Alternatively, the risks deriving from high demand for redemptions could be mitigated by setting up the funds as closed-end funds.

A lower redemption frequency without a meaningful notice period can still result in an immediate cash need to fulfil the redemption request, albeit on fewer days in a year. A longer notice period creates a time buffer for the fund manager to sell the underlying assets. Under certain circumstances, it might be appropriate for funds to have a longer notice period, irrespective of the lower redemption frequency. When redemption requests can be made less frequently (such as when they can only be made at the end of the period), redemption pressure can build up and become sizeable, which could make it harder to deal with in less liquid markets. Further, a lower



redemption frequency without a meaningful notice period could generate incentives to redeem in stressed market conditions, as investors may be unwilling to accept a longer period of risk-taking when markets become uncertain, thus triggering or amplifying selling pressure in the market. A prudent minimum requirement for the redemption terms should consider the fact that the liquidity of the underlying assets could deteriorate when exposed to stressed market conditions.

Use of anti-dilution LMTs

When the underlying assets of corporate bond funds, or other funds that invest in assets that might become illiquid in times of stress, are tradable but at a high cost, this cost should be passed on to investors that redeem or subscribe. Funds that invest in assets that are liquid in normal times but may become illiquid in stressed market conditions may be fit for daily dealing in normal circumstances, but their fund structures must be sufficiently resilient when liquidity conditions tighten. Anti-dilution LMTs such as swing pricing, dual pricing, anti-dilution levies and redemption fees can be used to ensure that effective costs of trading are passed on to the redeeming and subscribing investors, thus eliminating (part of) the first-mover advantage. These anti-dilution LMTs are most effective as part of the day-to-day management of the fund, i.e. even during normal market conditions, and where their use is transparent to investors. A dynamic approach in which the calibration of the swing factor, fee, levy or price is dependent on the level of stress in the market would make this tool better suited to financial stability purposes.⁶³ As envisaged in the provisional agreement on the review of the AIFMD and the UCITS Directive, EMSA will provide guidelines and technical standards for the use of LMTs – including anti-dilution LMTs – through the regulatory framework. These guidelines and technical standards should ensure that the use of anti-dilution LMTs takes the collective actions by fund managers and changing market circumstances into account. In addition, as liquidity risk is part of the overall market risk, fund investors should be aware (i.e. properly informed) that changes in the level of liquidity in the underlying market may affect the liquidity of fund units. This information should be provided to them via specific risk disclosures in the fund's legal documentation and marketing information.

Liquidity buffers in the management of margin and/or collateral calls

A liquidity buffer is able to mitigate the transmission of liquidity stress induced by margin and/or collateral calls to the wider market. However, certain systemic risks, specifically those arising from liquidity mismatch, may not be adequately addressed by adding a liquidity buffer. Liquidity buffers could be useful in exceptional situations if they are effective in reducing procyclical sales to deal with redemptions in times of stress. Nevertheless, they can increase first-mover advantage, such as where investors look to redeem before others to make a claim on the buffer

⁶³ See, for example, Jin, D., Kacperczyk, M., Kahraman, B. and Suntheim, F. (2019), "**Swing Pricing and Fragility in Open-end Mutual Funds**", *IMF Working Paper*, WP/19/227, International Monetary Fund, November; Lewrick, U. and Claessens, S. (2021), "**Open-ended bond funds: systemic risks and policy implications**", *BIS Quarterly Review*, Bank for International Settlements, 6 December; Lewrick, U., Schanz, J., Carpentier, J.F. and Rasqué, S. (2022), "**An Assessment of Investment Funds' Liquidity Management Tools**", *CSSF Working Paper*, Commission de Surveillance du Secteur Financier, June ; and Baena, A. and Garcia, T. (2022), "**Swing Pricing and Flow Dynamics in Light of the COVID-19 Crisis**", *Université Paris-Dauphine Research Paper*, No 4298540, December 9.



before the fund manager must resort to selling more illiquid assets.⁶⁴ These effects can be stronger in funds with a larger liquidity mismatch, when investors redeem to avoid being left with ever less liquid investments. Therefore, more conservative redemption terms and anti-dilution LMTs to mitigate first-mover advantage seem better suited to manage higher than expected outflows, as they target the problem more structurally. However, for funds that use leverage and are subject to margin/collateral calls, a liquidity buffer can be effective when the fund is at risk of being confronted with immediate cash needs that cannot be managed through normal asset sales, changes in redemption terms or the use of LMTs. Margin/collateral calls are a prime example of such immediate liquidity needs. A liquidity buffer allows funds, at least initially, to manage margin/collateral calls without having to resort to asset sales. The size of a liquidity buffer should be based on the leverage-related liquidity risk they might face.

Liquidity stress tests should be performed to assess the extent of the potential cash need.

Authorities at EU level could provide guidance to fund managers, beyond the already existing requirements set out in the ESMA Guidelines⁶⁵, on how to calibrate the right size of a liquidity buffer to cover margin/collateral calls through the use of stress testing. By providing guidance, authorities could promote a more conservative approach and help ensure that liquidity buffers are applied more effectively. The guidance should not be too prescriptive on the outcomes, although it should set minimum standards so as to ensure that the size of the liquidity buffer also takes into account the cost of holding part of the investors' equity as a buffer.

Box 5

Macroprudential measures for Irish property funds

On 24 November 2022, the Central Bank of Ireland announced new macroprudential limits on leverage under AIFMD Article 25 and Central Bank Guidance on liquidity timeframes to address liquidity mismatch in Irish AIFs investing over 50% of their assets directly or indirectly in Irish property assets.⁶⁶ These are the first macroprudential measures to be introduced and the non-bank pillar of the Central Bank of Ireland's macroprudential policy framework.

Irish property funds are, on average, more highly leveraged than their European peers, partly owing to borrowing from shareholders, though even accounting for this there is a cohort of property funds with elevated levels of leverage. Additionally, although Irish property funds typically have a low dealing frequency, liquidity mismatch is evident for a subset of these property funds, given the very illiquid nature of commercial property assets. Existing regulation already requires fund managers to align their investment strategy, the liquidity profile of their assets and their redemption policy. In practice, however, the Central Bank of Ireland has observed a variation in the redemption terms of Irish property funds, which cannot be explained fully by differences in the liquidity of their assets. In the presence of such vulnerabilities, the property fund sector could respond to future adverse

⁶⁴ See Bank of England (2021), "[Assessing the resilience of market-based finance](#)", 13 July; and Lewrick, U. and Claessens, S. (2021), "[Open-ended bond funds: systemic risks and policy implications](#)", *BIS Quarterly Review*, Bank for International Settlements, 6 December.

⁶⁵ See ESMA (2020), "[Guidelines on liquidity stress testing in UCITS and AIFs](#)", 16 July.

⁶⁶ See Central Bank of Ireland (2022), "[The Central Bank's macroprudential policy framework for Irish property funds](#)"; and [Advice of the European Securities and Markets Authority of 23 November 2022 on a proposed measure by the Central Bank of Ireland under Article 25 of Directive 2011/61/EU](#).



shocks through sales of property assets over a short period of time. This type of selling behaviour has the potential to amplify adverse shocks to the CRE market and the wider economy.

The Central Bank of Ireland therefore announced (i) a 60% limit on the ratio of property funds' total debt to their total assets and (ii) Central Bank Guidance, which sets out that Irish property funds should generally provide for a liquidity timeframe of at least 12 months, taking into account the nature of the assets held. This timeframe should be appropriately balanced between the notification and settlement period. The central bank will provide a five-year implementation period for the leverage limits for existing Irish property funds and 18 months for existing property funds to take appropriate action in response to the Guidance. The measures will apply immediately for any funds authorised on or after 24 November 2022.



Table 2

The regulatory framework from a financial stability perspective – adapting available tools

	Systemic risks related to liquidity mismatch, leverage and interconnectedness				Build-up of vulnerabilities	Inaction bias on the part of fund managers	
	Potential impact on underlying markets	Risks of fire sales of the underlying assets and contribution to downward price spirals		Risk of spillover to other financial institutions			Risk of interruption in credit intermediation
		From redemptions	From margin calls				
Ensuring closer alignment between redemption terms and the liquidity of the underlying assets							
Use of anti-dilution LMTs							
Use of liquidity buffers in managing margin calls calibrated via stress tests							

Legend: ■ Policy targets risk; ■ Policy does not set out to target risk, but has potentially beneficial side effects in relation to risk; □ Policy does not target risk.

Source: ESRB.

Notes: The table provides an overview of the regulatory framework from a financial stability perspective. It illustrates policy tools (adapted existing tools) that target financial stability risks related to liquidity mismatch, leverage and interconnectedness. It also considers the potential build-up of vulnerabilities in the absence of policy tools and whether a potential inaction bias on the part of fund managers would be addressed. Indirect second-round effects are not considered. The table does not assess the effectiveness of the policy tools in addressing financial stability concerns.



5.2.2 Assessing the need for new tools

Adapting existing tools would be effective in addressing certain risks to financial stability, although the policy framework for investment funds can be developed further to make the sector more resilient. The regulatory and supervisory framework can potentially benefit from efforts to improve the assessment of liquidity and new tools to address the build-up of liquidity risk. If the tools available to fund managers do not fully address risks and vulnerabilities, or if fund managers do not act promptly or do not consider the effects of their collective actions, policy tools at the discretion of authorities could be beneficial for financial stability.

Policy options to address stability risks are not limited to the options discussed in this section. There are three other policy options outlined in Annex A.2, although they were considered less promising and will not therefore be prioritised in further work.

Liquidity bucketing

Liquidity bucketing is a useful way for fund managers to assess the risk of their portfolio by looking at the liquidity of the underlying asset. Liquidity bucketing is an approach that allows funds to classify each of the investments in their portfolio, at regular intervals (for instance on a monthly basis), into what are known as “liquidity buckets”. How the asset is classified will depend on several aspects related to its liquidity, such as the number of days in which the fund reasonably expects that the investment could be converted to cash (or sold or disposed of) in current market conditions without substantially changing the market value of the investment, and the depth of the market for the asset. Funds then need to classify the individual assets into several categories, generally along the lines of (highly) liquid investments, less liquid investments, and illiquid investments. Further work on liquidity bucketing might include the design, definition and calibration of liquidity buckets. Here, this work can make use of the AIFMD reporting requirements, which include information on an AIF’s liquidity profile (i.e. different liquidity buckets based on time to liquidate). Liquidity bucketing is also used by the US Securities and Exchange Commission.⁶⁷

Following the FSB’s assessment of its 2017 Recommendations and potential revisions⁶⁸, the ESRB could develop a proposal on how the liquidity bucketing approach should be designed and implemented in the EU.⁶⁹ In the specific case of funds investing in assets that are generally not very liquid but also not inherently illiquid, such as corporate debt funds, liquidity bucketing can provide an insight into the liquidity profile of the portfolio. Fund managers are best placed to assess and manage the liquidity of their portfolios. Even so, authorities could facilitate a consistent approach to liquidity assessment via a framework of liquidity bucketing.

⁶⁷ See [17 CFR § 270.22e-4 – Liquidity risk management programs](#).

⁶⁸ FSB (2022), “[Assessment of the Effectiveness of the 2017 Recommendations on Liquidity Mismatch in Open-Ended Funds](#)”, 14 December.

⁶⁹ As mentioned, funds subject to the AIFMD are already required to classify their portfolio assets according to a liquidity bucketing approach. In some cases, a similar approach is also followed at national level for UCITS. Luxembourg, for example, has asked the same information as in the AIFMD via its proprietary UCITS risk reporting system since 2016.



Liquidity bucketing could add value to the further development of the policy framework for investment funds. Minimum requirements for liquidity management, redemption terms and the use of other tools could be dependent on the categorisation of the fund according to the liquidity bucketing approach. This would be in line with 2017 ESRB Recommendations.⁷⁰ In Recommendation B to the European Commission, the ESRB recommended that open-ended AIFs whose objective is to invest significantly in assets that are inherently less liquid should be required to demonstrate, to the NCAs, their capacity to maintain their investment strategy under foreseeable market conditions.

Developing further instruments to address ex ante liquidity risk from a financial stability perspective

Current regulation does not provide EU authorities with a specific ex ante instrument aimed at mitigating the build-up of liquidity risk from a financial stability perspective. Such an instrument could be conceived in much the same way as the existing leverage limit under AIFMD Article 25, in the sense that the instrument could be used for funds considered likely to contribute to systemic risk based on a targeted monitoring framework (see Box 3). Under AIFMD Article 25, supervisory authorities are granted specific powers which they can exercise to mitigate leverage-related risk from a financial stability perspective, including by limiting leverage in a time-varying manner. However, supervisors lack the power to address the build-up of liquidity risk at the sector-wide level. If a new instrument is deemed useful, it should be designed to help mitigate systemic risk, subject to the general policy considerations set out in Section 5.1.

A discussion on the role of authorities in applying certain tools

In the current regulatory framework, authorities can go some way to mitigating the risks stemming from investment funds by setting a leverage limit for AIFs or suspending redemptions. Under the current regulatory framework, authorities can address liquidity risk unrelated to the use of leverage by suspending redemptions.⁷¹ While this tool might be useful in crisis management, it has no ex ante effect on the resilience of the investment fund sector, and nor does it reduce its contribution to systemic risk. The decision on whether to apply other parts of the risk management framework to address other risks is left to the discretion of the fund manager and such measures might fall short of the mark in preventing excessive liquidity risk-taking. For example, when asset managers encounter tensions in the underlying markets, they can try to sell their assets before market conditions deteriorate even further. At the asset manager level, selling these assets may be the optimal solution. However, simultaneous sales on an aggregate scale may – owing to overlapping portfolios between different investment funds – exacerbate tensions in the underlying markets and lead to fire sale dynamics. In that case, the investment funds would have

⁷⁰ **Recommendation of the European Systemic Risk Board of 7 December 2017 on liquidity and leverage risks in investment funds (ESRB/2017/6).**

⁷¹ In its letters to the European Commission, the ESRB alluded to the need for further clarification of suspension of redemptions in the interest of the public, including scenarios in which broad-based redemptions would contribute to the build-up of systemic risk within the financial system or the risk of disorderly markets. See **“Letter from the ESRB to the European Commission on the shortcomings of the AIFMD framework”**, 3 February; and **“ESRB response to the European Commission consultation on the review of AIFMD”**, 29 January.



effectively amplified existing tensions, while asset managers would still have managed their portfolios in their best interest. What this means is that liquidity risk – which may result in sales at distressed prices or even forced sales when funds face large collective redemptions or margin/collateral calls – is not properly considered. Additionally, asset managers might be reluctant to use certain LMTs owing to potential reputational damage and therefore be subject to inaction bias. As fund managers might not be fully aware of the effects of their action – or inaction – on the wider financial system, a more prominent role for the authorities might be warranted. In this regard, further consideration could be given to the possible need for reciprocity, given the cross-border nature of the investment fund sector.

A discussion on the role of authorities should also consider the challenges and unintended consequences of applying such policy tools. Asset managers are required to act for the benefit of their investors, but have incomplete information on the behaviour of other market participants or the consequences of their actions on other actors. Authorities can seek to safeguard financial stability at the aggregate level but might lack detailed and timely information on how to respond in a crisis situation. In addition, authorities should not ignore the potential moral hazard effects associated with their policy interventions.



6 Conclusions

Structural vulnerabilities in investment funds that invest in assets which are either inherently illiquid or might become illiquid in times of stress are not fully addressed in the current regulatory framework. The current regulatory framework for investment funds contains certain measures that help mitigate risks to financial stability. The envisaged amendments to the AIFMD and the UCITS Directive will supplement the framework, most notably by improving the availability and consistent use of LMTs by fund managers across the EU. Nevertheless, recent episodes of stress related to investment funds (including the market turmoil at the onset of the COVID-19 pandemic and the stress in the UK gilt market) have revealed the apparent need for further regulatory adjustments to address fund vulnerabilities. Corporate bond funds, real estate funds and other investment funds with similar vulnerabilities could be made more resilient by adapting existing policy tools and developing new tools to reduce systemic risk.

As a first line of defence, certain policy tools already present in the regulatory framework could be enhanced to better serve financial stability purposes. First, structural liquidity mismatch in real estate funds and other funds which invest in inherently illiquid assets can be reduced by ensuring closer alignment between the fund's redemption terms and its investment strategy. This can be achieved by introducing longer notice periods as well as lower redemption frequencies. Alternatively, the risks associated with high demand for redemptions could be mitigated by setting up such funds as closed-end funds. Second, financial stability stands to benefit if investment funds use anti-dilution LMTs (e.g. swing pricing, dual pricing, anti-dilution levies or redemption fees) as part of their day-to-day management. This can be effective in mitigating first-mover advantage and the negative connotations of using such tools only in a crisis. Anti-dilution LMTs seem best suited to corporate bond funds and other funds exposed to markets where liquidity conditions can deteriorate quickly. Third, leveraged funds could increase their preparedness for cash needs stemming from margin and/or collateral calls in derivative and repo transactions by holding appropriate liquidity buffers, which could be calibrated through stress testing.

There is merit in analysing and exploring further avenues to enhance the policy toolkit for investment funds from a financial stability perspective. Several additional policy options might be effective in making investment funds more resilient, thus making the wider financial system more stable. Those policy options range from more incremental amendments, such as building on liquidity bucketing of fund assets with a view to combining it with measures aimed at increasing investment fund resilience, to more fundamental changes, such as developing further instruments to mitigate the build-up of liquidity risk from a financial stability perspective. In addition, as the incentives of fund managers and financial stability goals might not always align, there is a need to discuss the merits of the authorities playing a more prominent role in addressing shocks triggered, transmitted and/or amplified by (the collective action of) investment funds.

In the next phase of this ongoing work, the ESRB will refine the policy options set out in this issues note and will be mindful of the findings of the AIFMD and UCITS Directive review process and wider international efforts currently under way. The provisional agreement on the review of the AIFMD and UCITS Directives provides a basis for further scrutiny of systemic risks in the context of investment fund regulation. Further work by the ESRB will progress in two steps (see



Figure 3). First, it will develop certain policy options with a view to supporting national and EU authorities after the revised AIFMD and UCITS Directive have come into force. This work will focus on adapting tools already present within the regulatory framework to better serve financial stability purposes. The outputs of this stage of the work will inform national authorities' transposition of the reviewed Directives into national law and the development of relevant Level 2 and Level 3 EU acts and national supervisory guidelines. Second, over the medium term, the ESRB will further develop its systemic perspective on investment funds and examine whether other policy options set out in this issues note should be developed into policy proposals. This medium-term work would inform further reviews of the AIFMD and the UCITS Directive. When carrying out this work, the ESRB will be mindful of, and contribute to, international discussion in this area.



Annexes

A.1 Specificity of the investment fund structure: Investment funds vs individual investments

Investment funds allow investors to pool resources to enable the collective investment of assets under a common investment strategy. Although the specific features of a fund (such as admissible investors and investible assets) can and do vary, all funds share a number of common characteristics that are relevant for the present analysis: (i) investor assets are commingled, meaning that they all share profits and losses *pari passu*; and (ii) investor assets are segregated from those of the manager, meaning that funds are managed on a pure agency basis. As a result, and notwithstanding the various asset classes that funds may invest in, investments in funds do not represent a liability of the asset manager (unlike a bank deposit) and the asset manager generally offers no guarantee as to how the investment will perform. In other words, investors in a fund are exposed to all investment-related risks of the underlying portfolio that they co-own through their investment in fund shares/units and are informed of such risks via a prospectus and other disclosures.

Although funds expose their investors to all investment risks, there is an element of risk transformation when investing through funds. The agency structure of fund investments implies that all economic effects of the fund portfolio accrue to the fund investors collectively. Therefore, the performance of a fund investment should theoretically be equal to that of a direct investment in the same underlying portfolio.⁷² This means that investors should bear all the costs they may incur with the fund, as otherwise the other investors would have bear those costs. It is generally when subscribing or redeeming shares that individual investors cause the fund as a whole to incur costs. While funds are valued at mid-spread, transactions are executed at bid price or ask price. This liquidity cost should therefore be passed on to investors when they subscribe or redeem shares. Under normal market conditions, and as long as redemptions are relatively limited, these costs may be considered negligible. However, liquidity costs may spike in stressed market conditions. From an investor protection perspective, it is the redeeming investors that should bear those costs, not those that remain invested in the fund. From a financial stability perspective, there is also a risk that some investors may decide to sell their shares pre-emptively to avoid bearing the costs generated by redeeming investors (a phenomenon known as first-mover advantage). However, it is unclear

⁷² Minus the fees charged by the fund for services provided, such as management, performance, custody and transaction fees. This statement should hold true for large portfolios that overcome the minimum size problem described above.



whether a material share of redemptions during a crisis is due to a perception of first-mover advantage.⁷³

The main sources of liquidity transformation are liquidity mismatch and investment mandate rigidity.

In a simplified set-up, closed-end funds operate in the following stylised sequential fashion: investors pool their savings in a fund, the fund invests in line with a pre-defined strategy through to completion and then liquidates and returns the proceeds to its investors. Products managed in this way generate no risk transformation: all risks incurred by the fund are borne by the investors. However, for commercial reasons, most funds are set up as open-ended funds with no explicit investment horizon, meaning that investors are free to enter or exit the fund at any time while it continues to pursue its investment strategy. This introduces a degree of volatility in the fund's liability structure, forcing managers to buy or sell assets at unpredictable times. As not all assets in the fund portfolio have the same level of liquidity, one of the manager's duties is to best mediate the contractual obligations towards investors and any contingent opportunity cost that may arise when adjusting the portfolio's assets. Managers may also be constrained by regulation and/or their investment mandate on how best to adjust the portfolio. The investment mandate may allow full discretion or be highly prescriptive (e.g. indexed funds). The combination of these two features implies that when funds are faced with proportionally large subscriptions and – most notably – redemptions, the resulting shifts in portfolio composition have the effect of transferring risks between new and old investors. This circumstance, and even the expectations of investors regarding the impact of such risk transfers, can influence the behaviour of fund investors and counterparties alike. It is the impact of these feedback loops that creates the potential for procyclicality and, by extension, for wider systemic risk.

Rigidities when managing fund liquidity due to investment constraints can spill over to the wider market.

Faced with sizeable redemptions, a fund manager with a diversified portfolio has two options, both of which might have unintended and procyclical side effects:

- Sell the most liquid assets first (waterfall strategy). This strategy causes the overall liquidity profile of the portfolio to deteriorate, thus benefiting early redeemers at the expense of the remaining investors. While questionable from an investor protection perspective, it can also create a self-reinforcing feedback loop whereby the more investors redeem, the more the residual portfolio becomes illiquid, prompting even more investors to redeem to avoid being left with ever less liquid investments.
- Sell vertical slices of the portfolio so that the overall liquidity profile of the fund remains stable.⁷⁴ However, in doing so, the manager could be placing considerable pressure on the

⁷³ First-mover advantage has been defined by the FSB as follows: "First-mover advantage occurs when, under certain circumstances, investors who redeem their shares first do so on more favourable terms than investors in the same fund who redeem late. It can occur if, for example, the transaction costs for assets sold to meet redemptions are not properly allocated to redeeming investors. Another example of the first-mover advantage occurs if in a scenario of declining values of a fund's assets, investors can redeem before the fund's NAV adjusts to fully reflect those declines in value. An investor who redeems solely in anticipation of further market deterioration is not considered as benefiting from a first-mover advantage. First mover advantage may lead to pre-emptive runs", in FSB (2021), "**Policy Proposals to Enhance Money Market Fund Resilience – Final Report**", 11 October, page 59.

⁷⁴ This might require the manager to temporarily fund the redemption through borrowing to bridge the gap between reimbursing investors and actually managing to sell the assets.



markets for the less liquid assets.⁷⁵ This in turn can affect the value of the fund's portfolio and prompt even more redemptions.

The policy proposals for funds should be developed against a counterfactual of similar non-fund investment modalities, namely direct investment and managed accounts. Direct investment would represent the baseline, by removing the agency intermediation. Managed accounts reintroduce agency capacity, though there is no commingling of investments or considerations about pari passu treatment among investors.

⁷⁵ Or at the very least, more price pressure than the equivalent sale of liquid assets.



A.2 Other policy options considered

Average pricing

The aim of average pricing is to remove first-mover advantage in a scenario where investors are redeeming because they fear that other investors will also redeem. It means introducing an extended (frozen) redemption cycle during times of distress. In a set period predetermined by the fund manager, all redemptions would be valued at the same (average) price, thus removing the first come, first served timing advantage. To minimise disruptions and the impact on liquidity needs among investors, the fund would pay out redemption monies in a two-step approach. First, payment would be made subject to substantial pre-agreed haircuts, which would be held in escrow and used to average the prices at the end of the period. The second payment would be made at the end of the period, based on the actual prices obtained when selling the underlying assets and averaged for all redeeming investors. The measure would not directly target a reduction in amplifiers of shocks (such as leverage levels), but would have an overall effect of cutting off the amplification mechanism caused by first-mover advantage at the source.

System-wide application of redemption gates in times of stress

Limiting the collective outflow from funds that invest in assets that become less liquid in times of stress can be effective in curbing the transmission of liquidity risk to the wider market. This tool could be applied for funds investing in the corporate bond market, for which a daily redemption frequency may be the most fitting in normal times, while anti-dilution LMTs may be useful in limiting first-mover advantage. On top of that, the system-wide use of redemption gates in times of stress could limit selling pressure in the underlying market when liquidity is low. A regulatory requirement of redemption gates for all funds investing in corporate bonds would eliminate inaction bias and provide additional safeguards from a financial stability perspective by addressing potential collective action externalities. Applying this tool on a system-wide basis would be particularly effective, as redemption terms, including redemption frequency, are determined ex ante and cannot typically be adjusted on the spot. Gating outflows in times of stress would afford investors liquidity more in line with the liquidity of the underlying portfolio. To operationalise this tool, authorities could be tasked with drawing up guidance or technical standards to determine what qualifies as a stress situation and the minimum gate that funds would need to apply in such an eventuality. Redemption gates could be applied automatically in a stress situation by all funds investing in corporate bonds or applied by authorities in the interest of financial stability, as is currently the case when it comes to suspending redemptions.



A liquidity stabilisation mechanism

A privately-funded liquidity stabilisation mechanism for corporate bond funds could help funds cope with redemption pressure and avoid asset selling in response to redemption requests, thus limiting the impact on the underlying markets. The extent to which an individual fund would contribute to the stabilisation mechanism could depend on its market footprint within a segment (the larger its market footprint, the greater its contribution to systemic risk), or on its contribution to portfolio overlapping between corporate bond funds.

The functional objective of a liquidity stabilisation mechanism is to allow funds to neutralise redemptions through subscriptions by contractually committed buyers of last resort, thus removing the need to liquidate assets on the market at fire sale prices. In practical terms this could be achieved through a contract with a buyer of last resort – typically a bank with access to central bank funding – and some form of market risk insurance contract. The contract would require the buyer of last resort to buy either (i) fund shares at current NAV prices or (ii) an equivalent slice of the fund portfolio, and to warehouse it for a predetermined period of time, thus neutralising the market impact. The buyer could use the assets as collateral to fund the purchase. The fund would be required under the contractual agreement to prioritise the repurchase of the sold shares/assets with any new subscription flows, at running market prices. The market risk insurance contract is there to compensate the bank for any market losses incurred while warehousing the assets. The scheme requires no regulatory intervention to implement. However, it would need regulatory support to incentivise asset managers to enter into such arrangements, e.g. they could be taken into consideration as a liquidity tool, or accepted it as a substitute for other mandatory tools.

There are, however, a few important drawbacks in using this tool. It is expensive in terms of performance and provides limited protection. It is also unclear whether financial institutions (e.g. banks or insurers) would be able, or indeed willing, to enter into such contracts with asset managers (possibly viewing such market risk as an uninsurable risk). Furthermore, there would need to be some form of regulatory incentive and the tool would need to create a link between funds and buyers of the insurance contracts (although not on the liquidity dimension). The pros and cons of such a mechanism merit further analysis, including its potential to limit the amplification of risks and the costs to the individual fund and wider sector in lost returns.



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