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ESMA Report on Trends, Risks and Vulnerabilities No. 1, 2024

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Executive summary

Risk summary and outlook

Markets in ESMA's remit have remained remarkably resilient in 2H23, despite the confluence of risks that prevailed throughout the year. Overall, risks remain at high or very high levels. Going forward, markets are set to remain very sensitive, especially to the market impact of higher-for-longer interest rates, the macro-financial outlook, and geopolitical and peripheral risks. There is a high risk of corrections in a context of fragile market liquidity in equity, bond and crypto markets, with special concern relating to real estate exposures. Inflation has declined but continues to weigh on investors' real returns.

Key risk drivers

Risk drivers	Level	Outlook
Higher-for-longer interest rates: The sharp change in the interest-rate environment conditions financial stability and investor outcomes. Refinancing costs have risen sharply, and are set to weigh particularly on corporates with debt maturing in 2024 and 2025. Credit ratings have seen first downgrades. Deteriorating credit quality is ultimately set to affect the performance of investor portfolios.	■	→
Geopolitical and peripheral risks: The confluence of external risks continues to dampen the economic and market environment. As uncertainty and fragile liquidity are limiting the resilience of the financial system, external shocks should be expected to translate into high price volatility.	■	↗
Real-estate valuations: Commercial and residential real estate have been hit particularly hard by recent interest-rate developments. The downturn is feeding into financial markets and investors through lower equity and debt pricing of real-estate firms, rating downgrades, and declining real-estate fund valuations and liquidity risks. Derivatives and repo exposures are limited but concentrated.	■	↗
Greenwashing: Greenwashing and related malpractices risk undermining the credibility of green finance. With the first outflows from ESG funds in 2023, future incidences, unless prevented effectively, may undermine investor confidence.	■	→
Social media driven investments: Investors, especially less sophisticated ones with limited knowledge or resources, are at risk of receiving false or misleading information through social media. As finance-related postings expand, investors not verifying the reliability and quality of information may incur losses.	■	→

Market monitoring

Securities markets: Equity valuations were moderately up in 2H23 driven by an end-of-year rally linked to expectations interest rate decreases in 2024. Volatility remained contained, while bid-ask spreads were relatively elevated, highlighting market nervousness. Fixed-income markets were lower overall towards the end of 2023, with marked declines in yields for sovereign and corporate bonds in December. The credit quality of high-yield non-financials continued to decline, particularly associated with real estate, with default rates trending upwards.

Asset management: EU fund performance and flows were volatile in 2H23. Equity fund performance improved, with significant variation over the reporting period. In terms of flows, investors preferred fixed income funds over equity funds. MMFs specifically attracted significant inflows on higher interest rates and the inversion of the yield curve. Overall, risks stabilised but remained elevated, especially liquidity and credit risk. While funds managed the transition to higher interest rates, concerns remained regarding the valuation of real-estate fund assets in a falling market.

Consumers: Sentiment among consumers remained weak amid geopolitical uncertainty and subdued growth, despite falling inflation. At higher interest rates, consumers raised holdings of bonds, both directly and via investment funds. Real-estate exposures via retail AIFs are a source of risk. The average performance of retail investments improved in 3Q23. Consumer complaint levels fell.

Infrastructures and services: Equity-trading volumes showed a slight year-on-year decrease amid low volatility. The composition of volumes remained stable across trading types. Settlement fails remained broadly stable in 2H23 after their 1H23 fall. Cyber incidents in the financial sector globally remain a significant risk. The total number of outstanding ratings remained largely unchanged over the second half of 2023, with rating issuance markedly lower than in 1H23.

Structural developments

Market-based finance: Access to capital markets for European corporates continued to be mainly through fixed income markets and securitised products in 2H23. Equity primary markets slightly picked up. IPO activity was strained due to uncertain market conditions, while incumbent firms consistently used follow-on issuance to raise funds. Corporate bond issuance remained strong during 2H23. The corporate bond outlook will be shaped by a significant upcoming maturity wall from 2024 until 2028, with a peak in 2025. In this context, corporate debt sustainability continues to remain a considerable risk, especially in lower quality segments.

Sustainable finance: Following several years of uninterrupted growth, the uptake of ESG investing and growth of ESG markets have levelled off in recent quarters. The ESG bond market grew at a slower pace, with a total outstanding value of EUR 1.9tn in 4Q23, up 21 % in one year, while gross issuance volumes declined. SFDR Article 9 funds with a sustainable investment objective faced net outflows for the first time in 4Q23, and outflows from SFDR Article 8 funds promoting environmental or social characteristics accelerated, with the use of ESG-related terms in fund names a key factor of differentiation between these funds.

Financial innovation: Crypto-asset valuations rebounded in 2023, fuelled by the hope that spot crypto ETFs would obtain approval by the US SEC, which they did in January 2024. Still, at EUR 1.5tn, total market capitalisation of crypto assets remains half of the 2021 historic peak. The use of artificial intelligence in finance is growing around in a wide range of applications, even though dedicated AI-investment instruments remain limited.

Risk dashboard

Risk categories

Category	Level	Outlook
Liquidity risks		→
Market risks		↘
Credit risks		↗
Contagion risks		→
Operational risks		→
Environmental risks		→

Market segments

Securities markets

Risks	Level	Outlook
– Ongoing uncertainty from Russian invasion, recent geopolitical tensions, risks of market volatility – Continued macrofinancial uncertainties related to the tightening of financial conditions globally and the weak macroeconomic environment – Growing credit risks as low growth increases already high indebtedness and debt refinancing needs and costs grow – Market nervousness linked to strong reaction to adverse events		↘

Asset management

Risks	Level	Outlook
– Ongoing pressure on real portfolio returns from the weak mid-term economic outlook, and supply-side and inflation pressures – Shocks affecting both asset liquidity and liquidity demands could challenge funds exposed to liquidity mismatches – Ongoing adaptation to the new interest rate environment especially in sectors exposed to unrealised losses		→

Consumers

Risks	Level	Outlook
– Exposure to real estate through retail AIFs – Aggressive marketing, especially of higher-risk structured products and crypto-assets – Digitalisation, including emerging use of AI tools for client services – Lack of consumer proficiency in social-media-driven trading and copy trading – Potential greenwashing and limited ESG investing literacy – Poorly disclosed high costs		→

Infrastructures and services

Risks	Level	Outlook
– Ongoing operational risk of cyberattacks – Ongoing significant operational risk to infrastructures generally, including exposure from increasing digitalisation and the use of cloud services in core production processes – High reactivity to market events raises the risks of margin breaches and trade disruptions		→

Note: Assessment of the main risks by drivers and categories for markets under ESMA's remit since the last assessment, and outlook for the forthcoming quarter. Risk dashboard based on the categorisation of the European Supervisory Authorities Joint Committee. Risk drivers are key factors influencing potential risks within ESMA's remit, assessed through a narrative-based approach. Colours indicate current risk intensity. Coding: green = potential risk; yellow = elevated risk; orange = high risk; red = very high risk. Upward-pointing arrows = increase in risk intensity; downward-pointing arrows = decrease in risk intensity; horizontal arrows = no change. Change is measured with respect to the previous quarter; the outlook refers to the forthcoming quarter.

Risk analysis

ESMA publishes in-depth analyses across a wide range of risk issues. The list below highlights key ESMA Risk Analysis publications since the last TRV and their website links, as well as the latest editions of our ESMA Market Report series. For a full list of publications, visit our ESMA Risk Analysis webpage.

Securities markets, infrastructures and services

- Real estate markets – Risk exposures in EU securities markets and investment funds Link
- Evolution of EEA share market structure since MiFID II Link
- The August 2022 surge in the price of natural gas futures Link
- The EU securitisation market – an overview Link

Asset management

- Assessing risks posed by leveraged AIFs in the EU Link

Sustainable finance

- Impact investing – Do SDG funds fulfil their promises? Link
- The financial impact of greenwashing controversies Link
- Dynamic modelling of climate shocks in the investment fund sector Link
- The European sustainable debt market – Do issuers benefit from an ESG pricing effect? Link
- ESG names and claims in the EU fund industry Link

Financial innovation

- Decentralised Finance: A categorisation of smart contracts Link
- Decentralised Finance in the EU: Developments and risks Link

ESMA Market Reports

- EU Alternative Investment Funds 2023 Link
- EU Prospectuses 2023 Link
- Costs and performance of EU retail investment products 2023 Link
- EU Derivatives Markets 2023 Link
- EU Credit Ratings Market 2023 Link
- EU money Market Fund Market 2023 Link
- EU Securities Markets 2021 Link

Risk monitoring

Market environment

The macro-financial environment has deteriorated in 2H23, amid tight financing conditions and lowering inflation levels. At the global level, the IMF confirmed its negative outlook, with expected slowdown in global real GDP from 3 % in 2023 to 2.9 % in 2024. In the EU, the European Commission reduced its EU growth estimates to 0.6 % in 2023, maintaining a projected 1.3 % growth for 2024, but expecting a slight improvement going forward with a 1.7 % growth for 2025[1].

Inflation has continued its downward trajectory since its peak in October 2022, dropping to 3.1 % in November 2023 for the EU. The European Commission now projects an inflation rate of 6.5 % for 2023 in the EU and 3.5 % for 2024. The decline documents earlier drop in energy prices and tightened monetary policy. However, inflation levels show important differences across the EA, and are volatile across months (e.g. higher than expected December 2023 inflation levels estimated in some member states). Hence domestic price pressures remain elevated in some countries, while a return to the inflation target of 2 % is not expected before 2025 (Chart 1). Energy prices remain unpredictable amidst geopolitical tensions.

Interest rate moves by key central banks were paused in October, following the series rate hikes since 1Q22. The Federal Reserve System kept the US benchmark rate in the target range of between 5.25 % and 5.50 %, the highest target rate since 2001, after 11 rate hikes. The European Central Bank (ECB) paused its series of ten consecutive interest-rate increases in October, with the rate of the main refinancing operations remaining at 4.5 % (+ 0.25 pp since July 2023). The ECB's Asset Purchase Programme (APP) portfolio is scheduled to continue to decline, while the Pandemic Emergency Purchase Programme (PEPP) portfolio will continue to be reinvested in 1H24.

Global financial conditions reflect the tightening monetary conditions of the last two years, with higher average lending rates and constrained credit standards for both business loans and mortgages in Europe. The overarching risk driver of the current market environment is the impact of rising interest rates, feeding into stock and bond markets as well as into the repricing of debt-service costs. The observed low levels of volatility, along with stable prices (Chart 2 and 4), suggest that these effects have been anticipated and priced-in, just like the baseline expectations of a soft landing. If banks have benefitted from higher interest rates through increased net interest incomes as well as higher market valuations, there are concerns over the sustainability of their profitability[2], through lower lending volumes and concerns over banks' asset quality sensitivity to rising interest rates (such as consumer credit or real estate related exposures). Against rising interest rates and concerns over corporate profitability, corporate bond spreads declined, even for high yield corporates (Chart 3), pointing to an underestimation of risks.

Some signs of **credit quality deterioration** can be seen in high-yield non-financial corporates experiencing negative ratings drift as well as increased defaults (though still limited). Looking forward, elevated medium-term credit risks will persist, heightened by an increasing number of corporate issuers requiring refinancing in 2024 and 2025, which will face significantly raised funding expenses, increasing the potential for defaults. There is also anecdotal evidence of leverage building in the market, as illustrated by the concerns around the building-up of positions in the US Treasury market, as well as the initiatives to limit the leverage of the Liability-Driven-Investment funds following the 2022 stress (see asset management section).

The current uncertainty is exacerbated by the high level of **geopolitical risk.** After an initial reaction from global markets following the events in the Middle East in October, the financial market impact has remained limited so far. Financial markets have stayed calm over the Russian war against Ukraine, as it continues. However, financial markets remain nervous overall, and adverse changes or external events could spread rapidly and lead to very strong reactivity and a general surge in risk aversion.

1 IMF (2023), *World Economic Outlook – Navigating global divergences*; European Commission (2023), *European Economic Forecast – Autumn 2023*.

2 European Banking Authority (2023), *Risk dashboard 2Q23*.

Commodity prices and especially energy markets reacted to the Middle East crisis, with an increase in 2Q23, but have calmed. The surge in oil and natural gas prices observed in October went down, well below the levels observed at the beginning of the year (Chart 4). In this context, futures prices of natural gas have been well below the activation thresholds for the market correction mechanism (MCM)[3].

Higher interest rates are also impacting **real estate** valuations and refinancing costs[4]. For now the materialisation of this risk remains limited, with an observed downturn in commercial real estate markets and contained price adjustments in the residential property markets. Declining values were observed in 2023 for European listed real estate companies, rising concerns over their leverage and debt level, as exemplified by the strong negative drift in EEA real estate corporate ratings compared to other sectors. However, downgrades have been limited so far. Additionally, real estate funds comprise 20 % of EU commercial real estate investment and face exposure to the ongoing market correction. While their investor base is predominantly institutional and appears stable, potential risks may stem from a combination of vulnerabilities, including unrealised losses, large market footprint and liquidity mismatches, particularly in the case of open-ended funds (57 % of their NAV). Supervisors have already taken some actions to mitigate the build-up of risk, with proposals for leverage limits and increasing monitoring of those funds (see asset management section).

Government debt levels in EU member states are receding. Across the EU, the gross government debt-to-GDP ratio dropped to 83.1 % in 2Q23 (90.3 % in the EA). Sovereign bond yields declined in December, driven by anticipation of monetary policy changes in 2024. However higher interest rate levels, the subdued growth outlook in the EU and different fiscal stances among member States remain sources for concern over debt sustainability.

Our composite indicator suggests reduced **systemic stress** in 2H23, but it rose slightly in October due to increased geopolitical concerns (Chart 5). This illustrates the nervousness of markets in general, and their reactivity to event risks in particular.

Net investment flows from EA-domiciled investors remained slightly negative in 3Q23 and until October (Chart 6). These outflows reflected net sales both of EA debt securities by non-EA investors and of non-EA equity by EA investors.

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[3] The MCM is activated either (i) if the front-month future price on the Dutch TTF is above EUR 180 per megawatt-hour or (ii) if the difference between the future price and a reference price calculated by ACER, based on the average price of several liquefied natural gas price markers, is higher than EUR 35. See ESMA (2023), 'Effects Assessment of the impact of the market correction mechanism on financial markets', March.

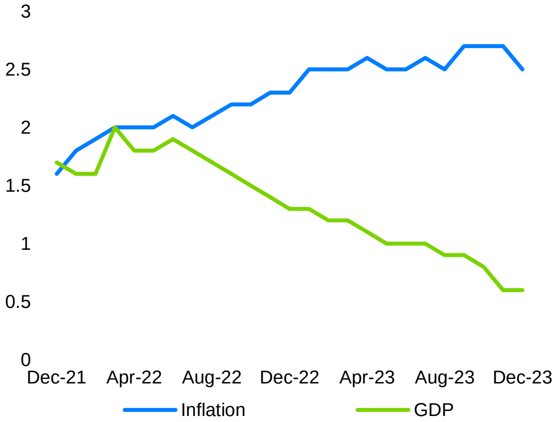
[4] See ESMA (2024), Real estate markets – Risk exposures in EU securities markets and investment funds, January.

Key indicators

Chart 1

GDP and inflation forecasts for 2024

GDP forecasts down, inflation forecasts volatile

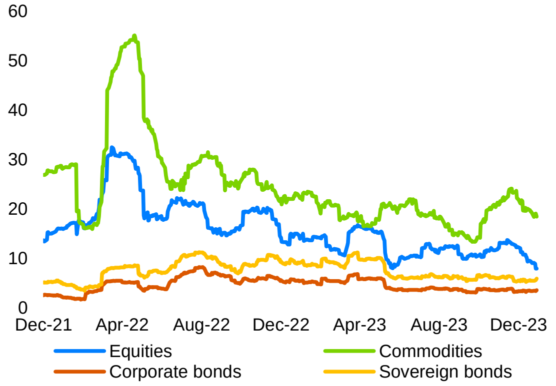


Note: Median GDP growth and inflation forecast for the euro area for 2024, by vintage month, in %.
Sources: Refinitiv Eikon, ESMA.

Chart 2

Market volatilities

Low and stable volatility levels

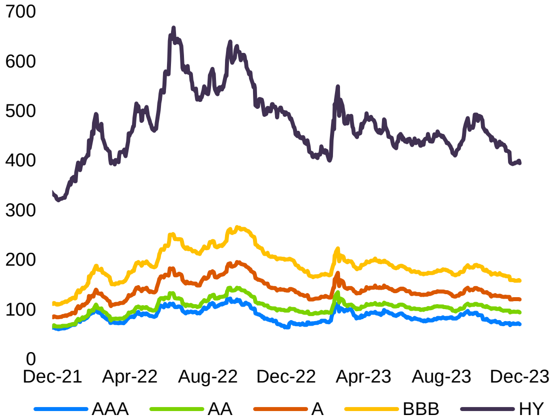


Note: Annualised 40D volatility of return indices on EA equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities), in %.
Sources: Refinitiv Datastream, ESMA.

Chart 3

Corporate bond spreads

Bifurcation of financial conditions' impacts

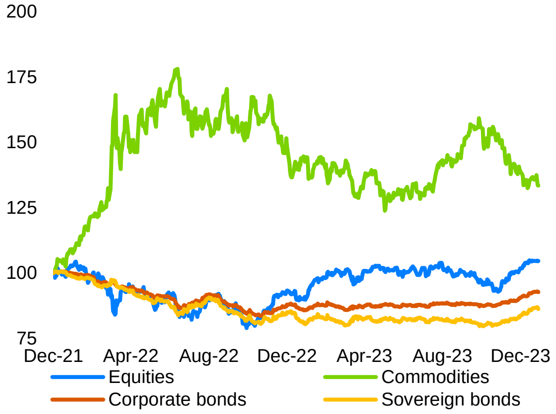


Note: ICE BofAML EA corporate bond option-adjusted spreads by rating, in bps. HY= high yield.
Sources: Refinitiv Datastream, ESMA.

Chart 4

Market performance

Slightly up, except for commodities

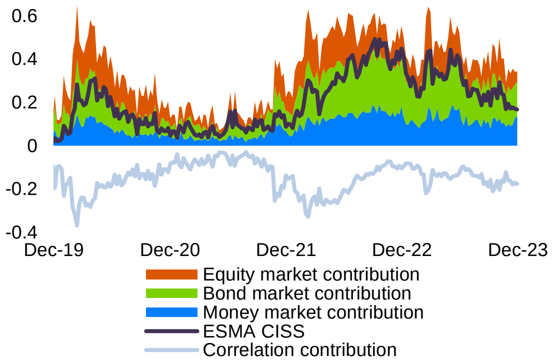


Note: Return indices on EA equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities). 01/12/2021=100.
Sources: Refinitiv Datastream, ESMA.

Chart 5

ESMA systemic stress indicator

Decrease in systemic stress

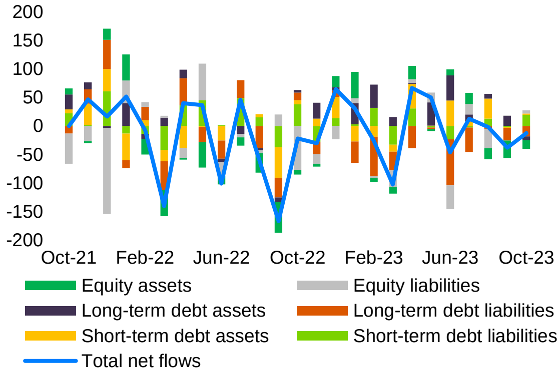


Note: ESMA version of the ECB CISS indicator measuring systemic stress in securities markets. It focuses on three financial market segments: equity, bond and money markets, aggregated through standard portfolio theory. It is based on securities market indicators such as volatilities and risk spreads.
Sources: ECB, ESMA.

Chart 6

Portfolio investment flows from and to the EA

Small outflows in EA in 3Q23



Note: Balance of Payments statistics, financial accounts, portfolio investments by asset class, EUR bn, Assets=net purchases (net sales) of non-EA securities by EA investors. Liabilities=net sales (net purchases) of EA securities by non-EA investors. Total net flows=net outflows (inflows) from (into) the EA.
Sources: ECB, ESMA.

Securities markets

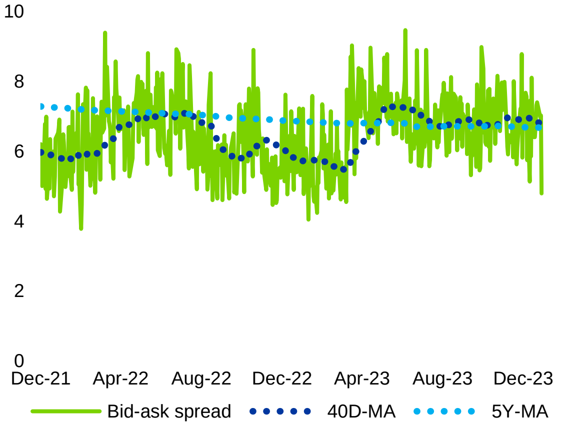
Equity: End-of-year rally after early autumn price correction, low volatility

European equity market valuations increased in the second half of 2023 – with major EU indices (Euro Stoxx 50 and STOXX 600) up 2.8 % and 3.7 % end-December 2023 compared to the end of 2Q23. Behind this moderate overall price increase, two distinct developments have been observed during 2H23. First, a significant price correction during the months of September and October 2023 (- 2 % and - 4 % respectively for STOXX 600), in line with global patterns. The market correction was driven by dampened growth projections, and increased geopolitical strains in the context of continued macrofinancial uncertainty (Chart 11). In turn, positive news on inflation and market expectations of monetary policy easing more than offset the lost ground in November and December (increases of + 6 % and + 4 % respectively for STOXX 600). While this trend was observed globally, US markets experienced larger gains in 4Q23 and are up 7 % since the end of 2Q23. The level of **price-to-earnings (PE) ratios** of European stocks dropped below their long-term average during 2H23, in contrast to US PE ratios which remain above their long-term average (Chart A.10).

At the sectoral level, the 4Q23 market rally led to valuation gains across all industries, albeit heterogeneous in size. **Bank valuations** have continued their upward path since 2Q23 (+ 8.5 % in 2H23), capitalizing on profit growth in a higher interest rate environment. Conversely, non-financials experienced mild market movements following lower-than-expected earnings (Chart 13), with utilities and healthcare displaying the lowest 2H23 growth (0.5 % and 0.8 %, respectively, as of end-December). Real estate sector shares, despite an initial drop in 1H23 (- 11 %), experienced a strong rebound during 2H23 (+ 28 %), and are up 14 % YoY as of end- 2023, yet still 32 % below end- 2021 levels.[5]

Market **volatility** remained contained and below its long-term average in 2H23, showing signs of attenuation compared to the surge observed in March 2023 linked to the US regional bank and the Credit Suisse related market stress (Chart 12). Nevertheless, a slight deterioration of liquidity measures, as observed by elevated bid-ask spreads (Chart 7) and higher-than-average levels of ESMA's equity illiquidity indicator (Chart A.14), highlights persistent nervousness and the potentially limited market resilience in the presence of ongoing uncertainty.

Chart 7
Equity bid-ask spreads in Europe
Bid-ask spreads remain elevated in 2H23



Note: Liquidity measure as median of the bid-ask price percentage difference for the current EEA30 constituents of STOXX Europe Large 200, in bps.
Sources: Refinitiv Datastream, ESMA.

Fixed income: Falling yields in December

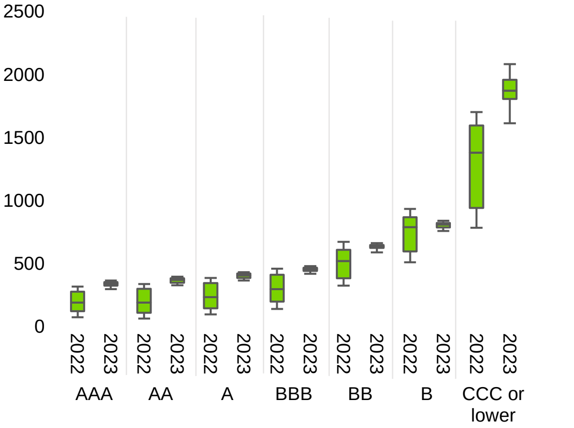
Fixed-income markets were stable for most of 2H23, with moderate increases in yields for sovereign and compressed yield distributions for corporate bonds until November. Bonds then rallied in December mostly linked to the Fed announcement of potential rate cuts in 2024.

Overall, European **sovereign bond yields** decreased during 2H23, after a moderate increase in September 2023 linked to the outlook for a high-for-long interest rate environment and uncertainty over future central banks decisions. Additionally, domestic political developments impacted the 2H23 trends. In the EA, BE saw the largest decline in 2H23 (- 46bps), followed by FR (- 45bps) and ES (- 44bps each). In contrast, US Treasury yields edged higher (+ 5bps) to 3.8 % despite the December decline, after touching

[5] For a detailed assessment of the risks posed by real estate markets to the financial sector, see ESMA (2024), [Real estate markets - risk exposures in EU securities markets and investment funds](#).

almost 5 % in October among fiscal concerns and expectations of future interest rate path.

Chart 8
Distribution of corporate bond yields by credit rating
Higher funding costs for lower-rated corporates



Note: Yearly distribution of corporate bond yields by rating, in bps.
Sources: Refinitiv Datastream, ESMA.

Corporate bond markets mirrored sovereign bond price developments in 2H23 (relative stability until November and sharp yield decline in December). However, the yield distribution across ratings remained quite compressed overall in 2H23 and above 2022 levels (Chart 8). In 2H23, corporate bond yields declined overall both for investment-grade (IG) and high-yield (HY) by - 82bps and - 102bps respectively. The picture is similar for 2023 as a whole, with HY bonds performing better than IG. However, within the HY segment, developments are differentiated across ratings, with yields for BB and B rated securities down. On the other hand, yields for securities at ratings of CCC or lower were up by 145bps, indicating market concerns about the ability for debt repayment and refinancing in a higher for longer interest environment (see also Credit quality's section).

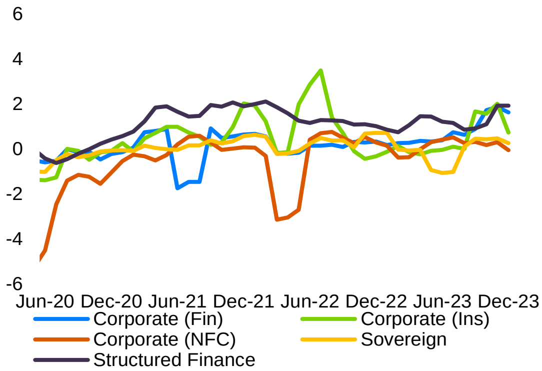
Corporate bond liquidity improved with respect to January 2023, with bid-ask spreads 10 % below the 1Y-MA and the Amihud illiquidity ratio falling by 2bps. Sovereign bond liquidity indicators show similar developments for most of 2H23, except for a sharp deterioration in the last week of the year.

Credit quality: Decline for high-yield non-financials

In the second half of 2023, indicators issued by credit rating agencies (CRAs) for European debt continued to show some signs of further credit quality deterioration in certain debt assets, particularly non-financials corporations (NFCs).

The picture for **corporates** was mixed. Ratings drift, a ratings-based measure of the net change in credit quality, turned negative for non-financials. In contrast, the drift for financials and insurers trended upwards and was significantly positive, likely reflective of the improved conditions for banks and insurers from higher interest rates (Chart 9).

Chart 9
Ratings drift by debt type
Corporate non-financials have lowest drift



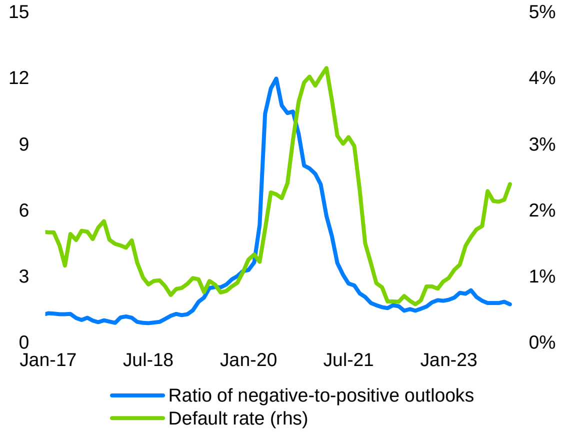
Note: 3-month moving average of net rating changes in EEA outstanding ratings from all credit rating agencies, excluding CERVED and ICAP, by asset class, computed as the percentage of upgrades minus the percentage of downgrades. Fin - Financials, Ins - Insurance, NFC - non-financials.
Sources: RADAR, ESMA.

Among EEA HY grade corporate **non-financials**, ratings drift was consistently negative through 2H23, and the default rate continued to grow, whereas the ratio of negative to positive outlooks remained relatively flat, after a limited increase in late 2022 and early 2023 (Chart 10). This suggests that credit rating agencies see current defaults in line with current ratings and outlooks. This is unlike in 2020, when the unanticipated onset of the pandemic drove a sudden shift in expectations and very rapid growth in negative outlooks.

Underlying the decline in credit quality of non-financials was a marked deterioration in the credit quality of real estate firms, strongly impacted by higher interest rates and the damping effect this has had on property markets. This is visible, for example, in the real estate sector, which has the most strongly negative ratings drift over 2023 (- 8 % average quarterly drift), much lower than any other sector in the EEA[6].

[6] For a detailed assessment of the risks posed by real estate markets to the financial sector, including a Chart on ratings drift by sector, see ESMA (2024), Real estate markets - risk exposures in EU securities markets and investment funds, January.

Chart 10
Ratio of negative to positive outlooks and default rate
Default rate grows for high-yield non-financials



Note: Ratio of negative-to-positive outlooks ratings and default rate in % for high-yield EEA corporate non-financial ratings.
Sources: RADAR, ESMA.

For **sovereigns,** drift returned to positive following the negative drift of 1H23 (Chart 9). At the Member State level, there were upgrades for Greece and Cyprus, an affirmation for Italy with an improved outlook to stable, and a downgrade for Slovakia. Overall these rating actions drove a positive drift for state ratings, while public and regional ratings drift rose back to above zero.

For **structured finance**, ratings drift was slightly up over the period (Chart 9). Ratings drift in CMBS fell and remained strongly negative. RMBS drift was volatile but remained strongly positive, while drift for both ABS and CDO grew and was positive. Ratings drift rose in all categories in 4Q23. Thus, with the exception of CMBS, which represent only a small minority of structured finance ratings in the EEA, there was little sign in 2H23 of a deterioration in credit quality from underlying loans feeding through into structured finance products. If anything, at the end of the year the movement in ratings suggested an improvement in the credit quality as measured by ratings.

Fallen angels, investment grade EEA ratings downgraded to HY grew compared to the previous half year. In 2H23, 0.13 % of corporate investment grade ratings (up from 0.1 % in 1H23) and 0.14 % of structured finance investment grade ratings (up slightly from 0.13 % in 1H23 were fallen angels. As in previous periods, there were no fallen angels in sovereigns. Levels are still below historical averages (0.2 % for corporates and 0.15 % for structured finance since 2016) and thus, risks that fallen angels could drive fire-sales by investors subject to mandates sensitive to fallen angels remain limited. Rising stars, upgrades from HY to IG, were up for both corporates (2.3 % in 2H23 compared to 1.8 % in 1H23) and for structured finance (2.2 % from 1.9 % in 1H23). In contrast, there was a massive jump in the proportion of high-yield sovereign ratings that were rising stars (to 58 % from 0 % in 1H23) as a result of upgrades of Greece and Cyprus to IG[7].

As for **defaults**, these continued to rise. For HY corporates, they rose to 1.1 % in the second half of 2023, from 0.8 % in the first half of 2023 and to 0.3 % in for structured finance ratings from 0.1 % in the first half of 2023. Corporate defaults were associated with non-financials and real estate in particular. Defaults of IG ratings remained very low.

Looking ahead, short- and medium-term credit risks remain elevated given an ongoing challenging economic environment and as more issuers need to refinance in 2024 and 2025. This could drive further downgrades and defaults[8], particularly for HY corporates facing substantially increased funding costs. However, to date, with the exception of real estate corporates, there has been little sign of significant credit risk crystallisation with the transition to the higher-rate environment. That said, there is also a lack of visibility on the crystallisation of risk in the private credit market, which has been growing in recent years. With its lack of transparency, a sudden credit risk deterioration in this market could have wider impacts that are difficult to anticipate[9].

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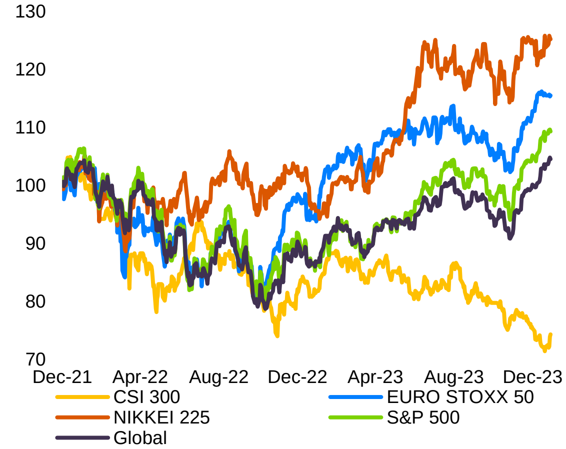
[7] The very large increase in share is due to there being a small share of EEA sovereign ratings that are high-yield.

[8] The major CRAs also anticipate increases in European corporate high-yield default rates, see S&P (2023), [Default, Transition, and Recovery: The European Speculative-Grade Corporate Default Rate Could Rise To 3.75 % By June 2024](#).

[9] For a further discussion of risks associated with private credit see IOSCO (2023), [Thematic Analysis: Emerging Risks in Private Finance Final Report](#).

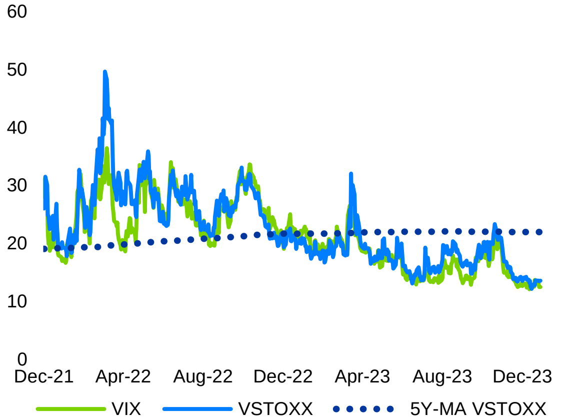
Key indicators

Chart 11
Regional equity market performance
3Q23 drop followed by end-of-year rally



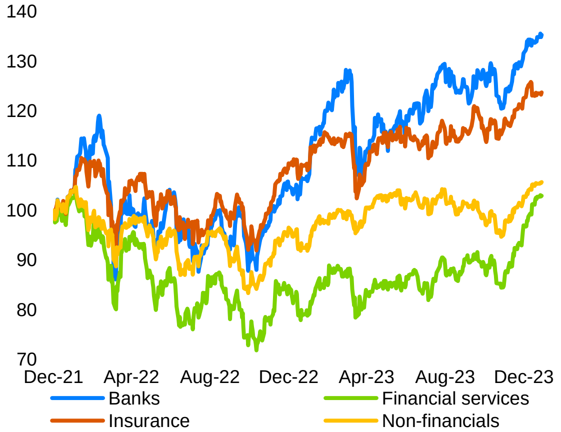
Note: Regional equity return indices. 01/12/2021=100.
Sources: Refinitiv Datastream, ESMA.

Chart 12
Equity market volatility indices
Muted volatility in 2H23



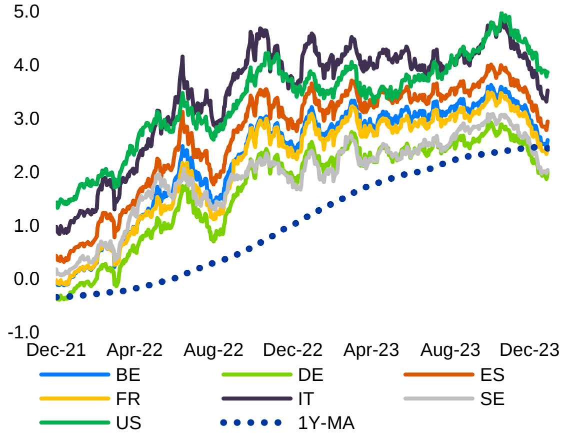
Note: Implied volatility of EURO STOXX 50 (VSTOXX) and S&P 500 (VIX), in %.
Sources: Refinitiv Datastream, ESMA.

Chart 13
Equity price performance in Europe by sector
Banks continue an upward trend



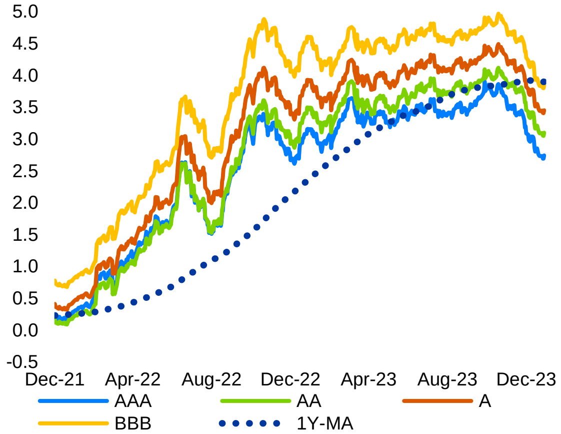
Note: STOXX Europe 600 sectoral return indices. 01/12/2021=100.
Sources: Refinitiv Datastream, ESMA.

Chart 14
EU sovereign bond yields
Decline in December 2023



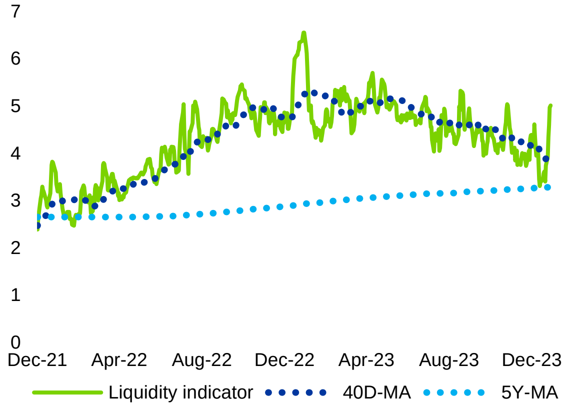
Note: Yields on 10Y sovereign bonds, selected countries, in %. 1Y-MA=one-year moving average of EA 10Y bond indices computed by Datastream.
Sources: Refinitiv Datastream, ESMA.

Chart 15
Corporate bond yields
Overall sharp decline in December 2023



Note: : ICE BofAML EA corporate bond redemption yields by rating, in %. 1Y-MA=one-year moving average of all indices.
Sources: Refinitiv Datastream, ESMA.

Chart 16
Sovereign bond liquidity
Liquidity improvement over reporting period



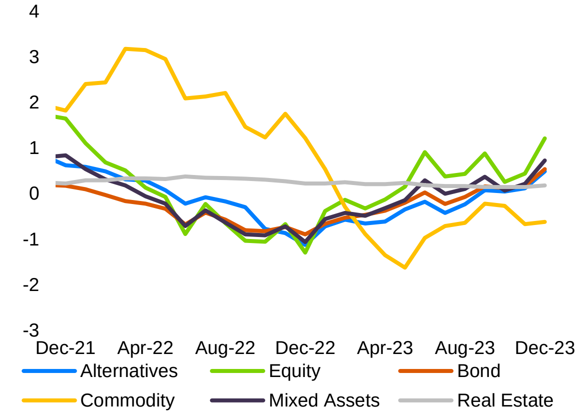
Note: Liquidity measured as median across countries of the bid-ask yields difference for 10Y sovereign bonds, in bps. Lower figures mean more liquidity and vice-versa. 22 EEA30 countries are included.
Sources: Refinitiv EIKON, ESMA.

Asset management

Volatile environment for investment funds

EU fund performance and flows were volatile in 2H23. The performance of **equity funds** increased from a 12-month average monthly return of 0.9 % in 1H23 to 1.2 % in 2H23, with significant variation during the reporting period. Against this background of volatile returns, equity fund flows remained negative at - 2 % NAV in aggregate. Similarly, the performance of funds investing in mixed assets improved amid significant volatility, from 0.3 % to 0.7 % in 2H23, with outflows totalling - 3.7 % NAV over the same period.

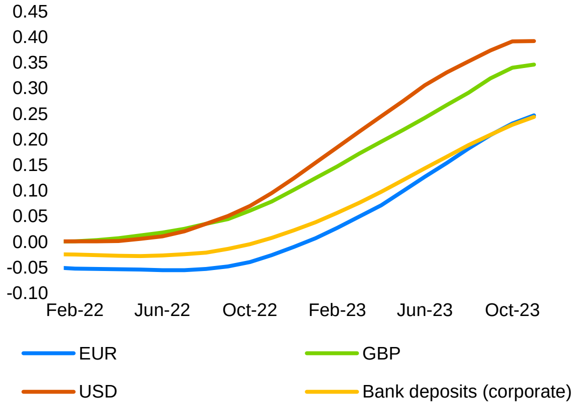
Chart 17
EU fund performance
Volatile but improving for most funds



Note: EU27-domiciled investment funds' annual average monthly returns, asset weighted, in %.
Sources: Thomson Reuters Lipper, ESMA.

In contrast, **money market funds (MMFs)** recorded 9.6 % inflows, a 2-year high. Most inflows were concentrated in USD and EUR MMFs, which received flows amounting to 14 % and 12 % of their NAV respectively. This surge coincided with the increased remuneration of MMFs, now 0.3 % higher on a monthly basis in nominal terms than in 1H23. MMFs particularly benefited from the inverted yield curve (in EUR, GBP, and USD) that made their assets, whose effective maturity is less than 397 days[10], more rewarding than other fixed income assets. This argument also applies when comparing MMF returns with bank deposits, whose rates rose more slowly (Chart 18).

Chart 18
MMF returns by currency
USD MMFs outperform others



Note:EU27-domiciled MMFs' median monthly return, 12-month average monthly, in %. Return for USD and GBP denominated funds are in local currency, notwithstanding FX rates. Bank deposit rate is the average monthly rate offered to corporate deposits with an agreed maturity of up to one year.
Sources: Refinitiv Lipper, ESMA.

Bond funds continued to record positive flows (0.6 % NAV), albeit significantly lower than in 1H23, when they experienced record high inflows (3.2 %). Their performance remained lower than equity funds but less volatile, with a 12-month average monthly performance of 0.5 %.

Finally, the performance and flows of **real estate funds** remained stable in comparison to other fund categories. However, this stability may hide more fundamental concerns regarding asset valuation (Textbox 1) in the context of mounting risks due to falling prices[11].

Interest rate risk decreases but valuation concerns remain

While funds managed the transition to higher interest rates, risks remained elevated, especially liquidity and credit risk. Fixed income fund holdings of liquid assets remained stable in 2H23, thus maintaining their resilience to **liquidity risk** (Chart 22).

10 Standard VNAV MMF can are allowed to invest in money market instruments with a residual maturity of 2 years, provided that the time remaining until the next interest rate reset date is 397 days or less.

11 See ESMA (2024), Real estate markets - risk exposures in EU securities markets and investment funds, January, and ESMA (2024), EU Alternative Investment Funds market report, January.

However, the weighted liquidity of HY fund assets (5.6 %) remained markedly below its 5-year average (8.3 %) and has been broadly stable over the last 18 months. Moreover, the median cash holdings of corporate bond funds (IG and HY) fell to 1.4 % of their portfolio (down from 2.8 % in 4Q22). Despite some stabilisation of the macroeconomic environment, the risk of materialisation of **credit risk** remained elevated in 2H23 for HY funds (Chart 24). The credit quality of HY portfolios stabilised between BB– and B+ on average since 2021, compared to BB on average pre-pandemic. The main concern remained the solvency of indebted companies in the context of higher for longer interest rates and an increased need for refinancing from 2024 onwards. On the other hand, for EU funds exposed to the Middle East (EUR 900mn NAV), so far, no significant materialisation of credit risk has been observed following the resurgence of geopolitical tensions in the region.

The transition from the low interest rate to the higher interest rate environment exposed funds to significant **interest rate risk**. Against this background, bond funds further decreased the duration of their portfolio, in line with broad bond market indices. The duration of the EUR IG Corporate Bond Index declined from 4.7 to 4.4 years in 2H23. Similarly, the duration of the EUR HY corporate index receded from 3.3 to 3.0 years since 2H22. This implies that the potential valuation impact of a 100 bp yield shock has further decreased by 0.3 percentage points. However, this decline stopped at the end of the year. Regarding MMFs, the weighted average maturity (WAM) increased further, up to 38 days, indicating a greater exposure to interest rate risk. However, this remains below the historical average (38.9 days).

Valuation concerns remained, especially for funds which do not frequently value their assets, exposing them to potential **unrealised losses.** In a context of declining real estate prices, real estate funds especially need to reevaluate their portfolio regularly, otherwise they are exposed to temporary valuation discrepancies. Recent developments indicated that real estate fund valuations have already factored in the price decline, although potentially with some delay (Textbox 1).

Textbox 1

Real-estate fund flows and valuation

In the long run, the performance of RE funds is more stable than other fund types and has only been negative on two occasions over the last ten years, for the last time in 2H16. This reflects the overall low volatility of real estate prices compared to other assets. Similarly, RE fund flows are generally more stable owing to the cost of transaction of real estate assets and the existence of fees, such as subscription fees, which increase the stickiness of investments in RE funds. Moreover, 70 % of real estate funds are closed ended (43 % in terms of NAV) and a large proportion of open-ended funds limits redemptions by dealing only on certain dates or using long notice/settlement periods.

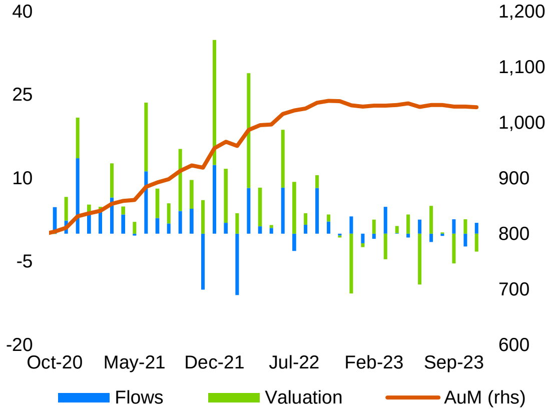
RE funds NAV decline in a falling market

In 2023, the NAV of RE funds slightly declined for the first time after 15 years of a continuous increase. While flows remained slightly positive overall, valuation effects represented -0.7 % of NAV (Chart 19) with wide variations across Member States.

Chart 19

RE funds flows and valuation

Declining flows and negative valuation effects

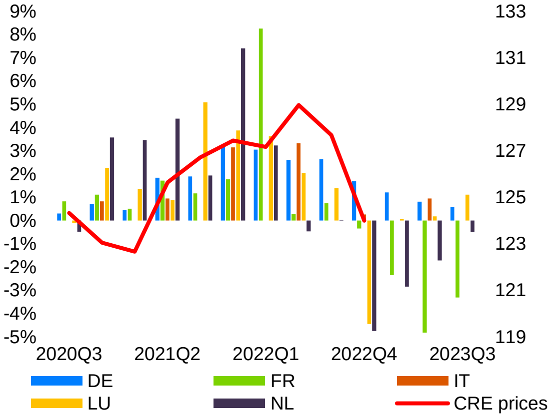


Note: Net valuation effect related to the AuM of EA real estate investment funds, computed as the intraperiod change in AuM, net of flows received in the respective period, in EUR bn.
Sources: ECB, ESMA.

Pace of valuation adjustment may differ across Member States

In the context of declining prices in the commercial real estate (CRE) market, RE funds need to regularly update the valuation of their assets, at a frequency at least in line with the redemption frequency. They must reflect the changing market conditions (and potentially update their assumptions) to fully reflect, in a timely manner, the fair value of their portfolio. This is however complicated by various factors such as infrequent transactions in comparable assets. Otherwise, investors in open-ended funds could benefit from a “first-mover advantage” at the expense of other investors. In 2022, CRE market prices declined by 2.7 %, which was reflected in the valuation adjustment in RE funds. In 2023, trends differ across EU jurisdictions, with a 10 % decline in valuation in France and the Netherlands compared to a slight increase in Germany and Italy (Chart 20).

Chart 20
RE fund valuation in the largest jurisdictions
Impact differentiated between jurisdictions



Note: Net valuation effect related to the AuM of EA real estate investment funds, computed as the intraperiod change in AuM, net of flows received in the respective period, in EUR bn.
Sources: ECB, ESMA.

While these trends may reflect the characteristics of the various markets, supervisors are attentive to valuation practices, to avoid unrealised losses related to lagged valuation. In 2022, a Common Supervisory Exercise (CSA), between ESMA and the NCA showed an overall satisfactory level of compliance of supervised entities with the applicable regulatory requirements on valuation. However, the CSA also highlighted a heavy reliance on long-term models for the valuation of underlying real estate assets, which may result in stable valuations that are not always sufficiently reactive to changing market scenarios.

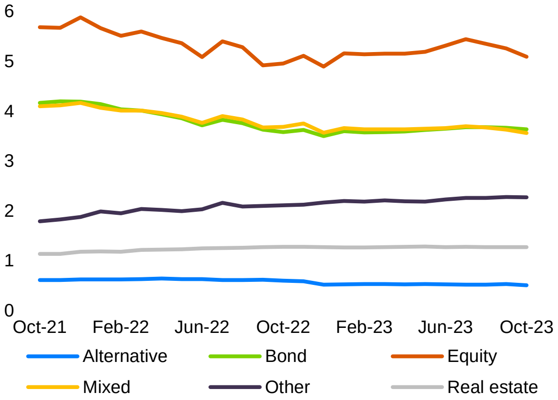
Leverage is a risk amplifier in the financial sector, and in the fund sector in particular as illustrated by the stress affecting GBP funds pursuing Liability-Driven Investment strategies in 2022. In that context, leverage declined overall in 2022. Using the adjusted measure (calculated as gross exposures to NAV excluding IRDs and FX derivatives used for hedging purposes), the leverage of Alternative Investment Funds (AIFs) declined to 123 % of the NAV compared with 127 % in 2021. However, this does not reflect important differences across AIF types, with hedge fund adjusted leverage at 265 % while for all other types of AIFs leverage is below 140 % (Chart 24). Leverage-related risks are subject to a specific monitoring framework as set out in ESMA's Guidelines on Article 25[12], so that NCAs can impose leverage limits or other restrictions, if necessary[13].

[12] See ESMA (2020), Guidelines_on_Article_25_AIFMD.

[13] For further analysis of risks related to leverage for AIFs see ESMA (2024), Assessing risks posed by leveraged AIFs in the EU, January.

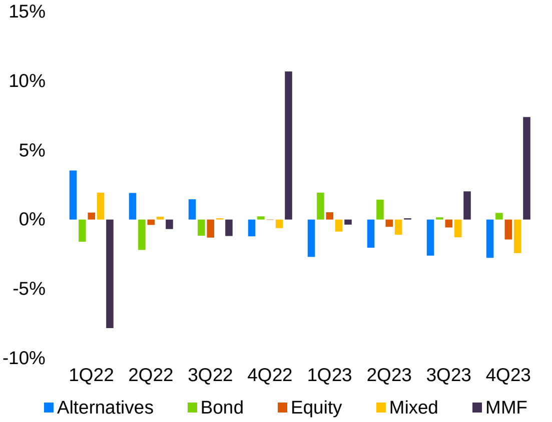
Key indicators

Chart 21
EA fund assets
Stable across fund categories



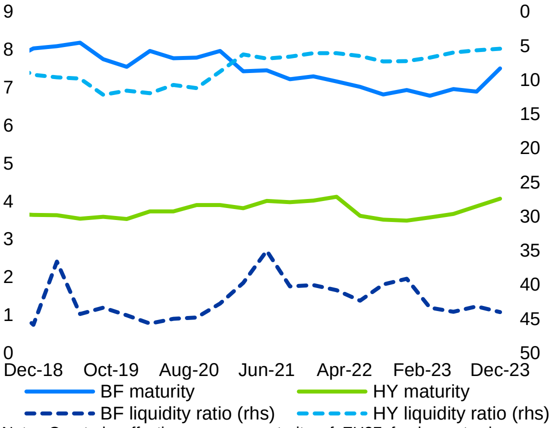
Note: AuM of EA funds by fund type, EUR tn.
Sources: ECB, ESMA.

Chart 22
EU fund flows by fund type
Muted flows except for MMFs



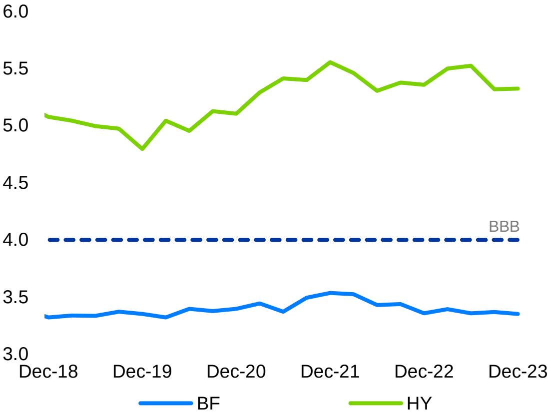
Note: EU27-domiciled funds' quarterly flows, in % of NAV.
Sources: Refinitiv Lipper, ESMA.

Chart 23
Liquidity risk profile of EU bond funds
Portfolio maturity stopped declining



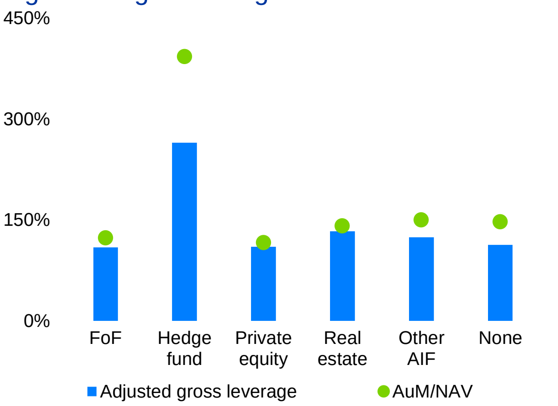
Note: Quarterly effective average maturity of EU27 fund assets, in years; ESMA liquidity ratio (rhs, in reverse order).
Sources: Refinitiv Lipper, ESMA.

Chart 24
Credit risk
Credit risk elevated in HY funds



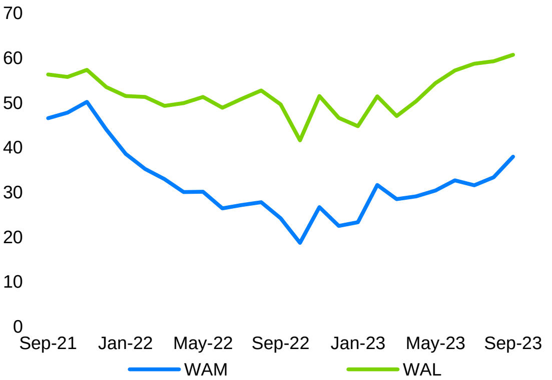
Note: Quarterly average credit quality (S&P ratings; 1= AAA; 4= BBB; 10 = D) for EU27-domiciled funds .
Sources: Refinitiv Lipper, ESMA.

Chart 25
Leverage
High leverage for hedge funds



Note: Adjusted gross leverage of AIFs managed and/or marketed by authorised AIFMs, end of 2022, in % of NAV. Adjusted gross leverage does not include IRDs. FoF= Fund of funds, None=No predominant type. Data for the EEA30.
Sources: AIFMD database, National competent authorities, ESMA.

Chart 26
MMF maturity
WAM and WAL increase



Note: Weighted average maturity (WAM) and weighted average life (WAL) of Europe-domiciled MMFs, in days. Aggregation carried out by weighting individual MMFs' WAM and WAL by AuM.
Sources: Fitch Ratings, ESMA.

Consumers

Shift to bond investments

Investor confidence was negative in December 2023 (Chart 28), amid heightened geopolitical uncertainty and a subdued growth outlook, despite recent falls in inflation. Nonetheless, households saw some improvement in their aggregate financial situation. Disposable income growth (8 %) exceeded inflation (5.5 %) in the 12 months leading up to June 2023, and holdings of financial assets increased (3.7 %), having declined in 2022 (- 5.5 %).

Following rising interest rates, the total value of **bonds held by EU households** increased by 10 % in 3Q23, and was over 60 % higher than in 3Q22, a growth rate unseen in decades (Chart 29). Net inflows into bonds were around 3 % of disposable income as of 2Q23, more than for any other asset class. Nonetheless, bonds constitute a minor asset class for EU households, accounting for only 2 % of their total financial assets, versus 24 % allocated to equities and 10 % to investment funds.

The **performance of retail investments** improved, but still trailed inflation. Based on a stylised portfolio for retail investors (Chart 30), the 1Y-MA of monthly gross returns stood at 0.5 % in nominal terms in 3Q23, up from -0.6 % in 4Q22. In real terms, the 1Y-MA f monthly gross returns stood at -0.1 % in 3Q23, up from - 1.4 % in 4Q22

In 3Q23, **retail fund returns** improved. Annual performance net of costs improved across all asset classes (Chart 31). Equity funds delivered the highest net returns during this period (9.4 %), followed by mixed funds (3.7 %), having been strongly negative over 2022 (respectively - 17.7 % and - 13 %). For the first time in seven quarters, bond funds achieved positive annual net returns, rising to 1.2 % in 3Q23, up from - 10 % in 2022.

While all asset classes exhibited positive and improving returns, **net flows into retail funds** showed two opposite trends (Chart 32). On the one hand, retail investors disinvested from mixed and equity funds, resulting in aggregated annual net outflows of EUR 66bn in 3Q23. At the same time, bond funds experienced net inflows of EUR 79bn during the same period, mirroring the concurrent rise in direct holdings of bonds among EU households. Factors such as rising interest rates and limited risk tolerance given weak sentiment contributed to these patterns in investor decision-making.

Another source of risk for consumers is **exposure to real estate** (RE). At this stage, retail investor exposure through RE AIFs is limited (EUR 208bn in 2022). Nonetheless, a downturn in real estate markets will also affect consumers' finances by reducing the wealth of homeowners.

Growing use of social media

Securities markets and financial services more generally continue to be shaped by **digital technology** and innovation. The trend towards increased use of digital intermediaries continues and is the strongest among young adults[14]. While digitalisation brings many benefits, such as convenience and the possibility of tailored services, certain features pose risks. For example, digital platforms may offer traditional investments alongside risky, speculative products including crypto assets[15].

The expanding **use of social media by investors** – in some cases directly available within digital trading apps – involves the risk that investors may unwittingly act on biased or misleading information. Additionally, the social media-based phenomenon of financial influencers adds the risk that recommendations are given without following the applicable rules[16].

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14 In 2022, 18 % of EU adults aged 25-34 used digital brokers, versus 16 % among those aged 35-44 and 15 % among those aged 45-54. Source: Statista.

15 Some digital providers now offer 'fractional shares', allowing investors to participate in a share's performance via an instrument that tracks the share price but is available at a smaller purchase price. ESMA published a Public Statement in March 2023 on derivatives on fractions of shares, to clarify the application of investor protection requirements in MiFID II, especially around the information clients receive.

16 The EU Market Abuse Regulation requires those producing investment recommendations to disclose identities, present recommendations in an objective way, and disclose all relationships or circumstances that would impair objectivity. Beyond these general requirements, Commission Delegated Regulation (EU) 2016/958 establishes additional requirements only for professionals and experts.

At the same time, social media can be a useful source of information for **monitoring** and understanding real time retail investor sentiment via the use of innovative techniques (Textbox 2).

Textbox 2

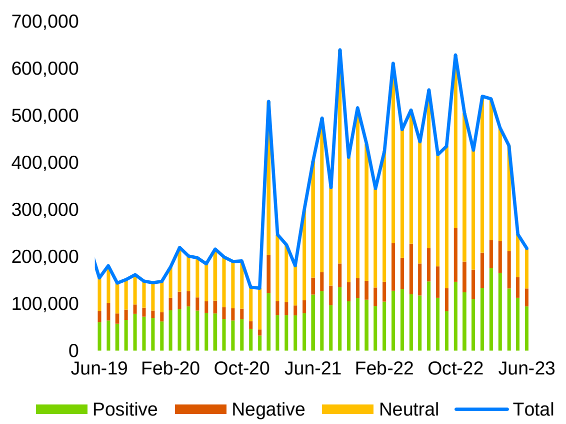
Social media analysis to monitor real-time retail investor sentiment

Digitalisation has been drastically changing the way investors – notably retail investors – access and consume information relevant to financial markets. A prominent example of how social media interactions affected investors' actions is the GameStop episode of 2021, characterised by extreme price volatility and intensive trading by retail investors, many of whom suffered substantial losses [17]. The episode highlighted severe detrimental risks to retail investors, especially for those with limited resources or financial knowledge, who may find it difficult to recognise when information is false, biased or misleading. In light of these developments, ESMA and other authorities have issued statements and investor warnings[18]. Similarly, analytical work is also ongoing informing policy and supervisory discussion on the topic.

Chart 27

Social media interactions and sentiment

Stoxx600 social media interactions are volatile



Note: Social media messages mentioning constituents of the Stoxx 600 Index, classified by sentiment type. "Neutral" messages are defined as the number of "Total" messages minus "Positive" and "Negative".
Sources: Stockpulse, ESMA

The analysis of social media data can complement the monitoring of retail investor sentiment based on surveys. In contrast to survey-based sentiment (Chart 27), social media sentiment can be used to investigate a large range of specific topics and financial instruments, almost in real time. Additionally, the data can be adapted to investigate investor's attention and sentiment towards a market, a sector, an index (as shown in Chart 27) or individual stocks. We analyse social media messages mentioning any constituent of the Stoxx600 index between January 2019 and June 2023, monitoring both the number of interactions (attention) and the sentiment of the interactions (positive, negative and neutral). We observe that the overall level of social media interest in a market, measured by the total number of messages mentioning any constituent of the Stoxx600 index, is volatile in the analysed period. This volatility – including the drop in total messages in May 2023 – is largely driven by events concerning just a few stocks, or even a single stock[19]. Most interactions are characterised by a neutral sentiment and the monthly aggregated sentiment shows more positive than negative messages throughout the sample period. These characteristics emphasise the need for careful consideration as well as the benefits of including social media data in our risk assessment. While the huge volume of information on social media may reduce the information asymmetries between retail and institutional investors, it can also amplify behavioural biases, facilitate potential market manipulation and spread misinformation. Consumers are exposed to an increasing range and volume of digital information and may find it difficult to distinguish between reliable sources, general opinions and disinformation. At the extreme, disinformation can include potential mis-selling and fraud. This creates high risks to retail investors[20] and market integrity issues. Consumers' digital and financial literacy may partially help address these risks.

Investor protection: Complaints decline

Complaints reported through firms and directly by consumers to NCAs totalled around 3,000 in 3Q23, below their 2-year quarterly average (Chart 33). Complaint numbers are down from the high levels seen during the pandemic amid turbulent trading conditions and a boom in retail trading. In 3Q23, almost half of complaints for which an instrument type was recorded related to equities, while around a quarter related to funds and another quarter to CFDs[21].

An important consideration for analysing consumer complaints is the provision of cross-border investment services by investment firms and credit institutions in the EEA, on which ESMA recently published a news item[22]. Based on a data collection, around 380 firms provided services to 7.6mn retail clients on a cross-border basis in 2022. CY was the leading location for firms (23 %), followed by DE (16 %) and LU (13 %). Firms recorded around 5,700 complaints relating to the provision of cross-border investment services to retail clients in 2022.

[17] See e.g. ESMA (2021), TRV No. 2, 2021 and Anand A., Pathak J. (2022), "The role of Reddit in the GameStop short squeeze", Economics Letters, 211.

[18] In October 2021, ESMA published a Statement on investment recommendations on social media.

[19] The high volatility of total messages starting in 2021 is mainly due to discussions on social media around four constituents of the Stoxx 600 Index, reaching up to 75 % of total mentions concerning a single firm.

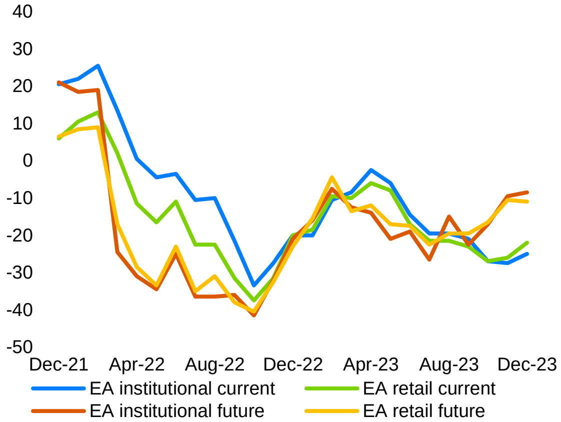
[20] Arcuri M., Gandolfi G., Russo I. (2023), "Does fake news impact stock returns? Evidence from US and EU stock markets", Journal of Economics and Business, 125–126.

[21] Interpreting patterns in complaints data requires an understanding of recent events and data limitations, such as significant time lags and heterogeneity between Member States. An additional reason for caution is that the data do not include some major retail markets for these products (e.g., NL, PL) and only some complaints can be categorised as referring to a financial instrument.

[22] ESMA (2023), ESMA performs an analysis of the cross-border investment activity of firms, July. Some country figures have to be interpreted with caution, as the firm-level reporting did not follow the ESMA template. Firms that did not provide investment services to more than 50 retail clients in any other Member State were not included.

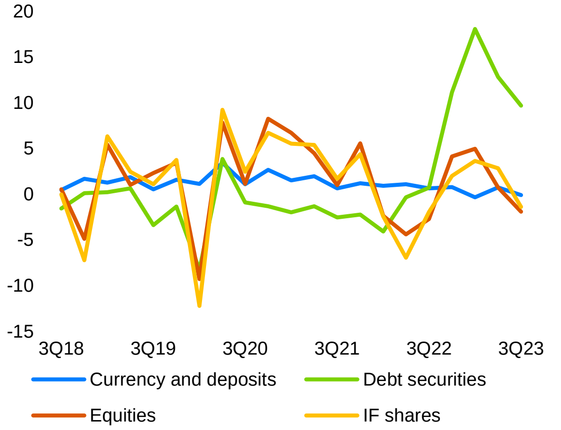
Key indicators

Chart 28
Investor sentiment
Weak current investor sentiment



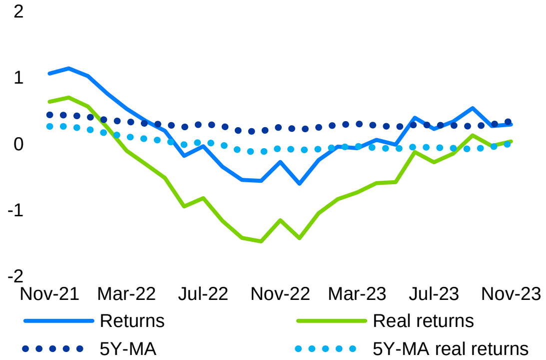
Note: Sentix Sentiment Indicators for the EA retail and institutional investors on a ten-year horizon. The zero benchmark is a risk-neutral position.
Sources: Refinitiv Datastream, ESMA.

Chart 29
Growth rate in financial assets
Strong growth in debt securities



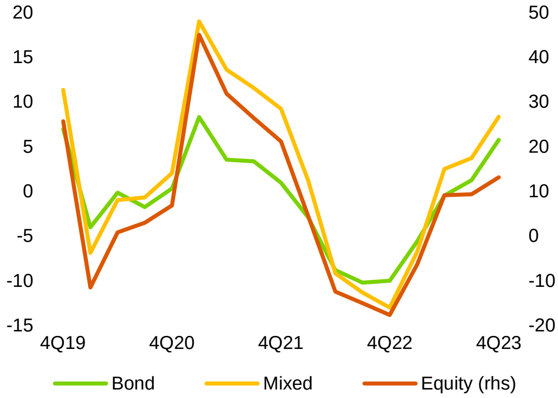
Note: Quarterly asset growth rates of financial assets held by EU27 households, in %. IF shares=investment fund shares.
Sources: ECB, ESMA.

Chart 30
Nominal and real returns
Gradual improvement in portfolio returns



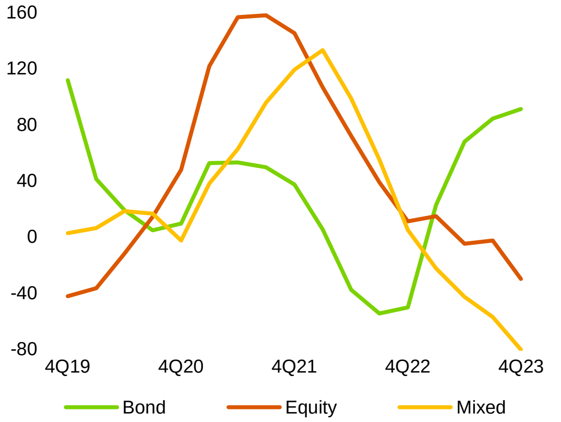
Note: One-year moving average of the monthly gross nominal and real returns of a stylised EU household portfolio, in %. Asset weights, computed using National Financial Accounts by Institutional Sectors, are 36% for collective investment schemes, 39% for deposits, 22% for shares and 3% for debt securities. Costs, fees and other charges incurred for buying, holding or selling these instruments are not taken into account.
Sources: Refinitiv Datastream, Refinitiv Lipper, ECB, Eurostat, ESMA.

Chart 31
Retail UCITS net return by asset type
Returns subdued



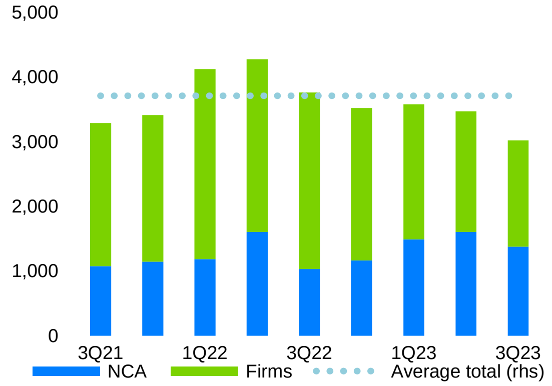
Note: Evolution of net annual performance (net of ongoing costs (TER), subscription and redemption fees) of EU27 UCITS, retail investors only, by asset class, in %.
Sources: Refinitiv Lipper, ESMA.

Chart 32
Retail UCITS net flows by asset class
Net inflows for bond funds



Note: EU27 UCITS annual net flows, retail investors only, at quarterly frequency by asset class, EUR bn.
Sources: Refinitiv Lipper, ESMA.

Chart 33
Overall complaint volumes
Complaints below 2-year average



Note: Number of complaints recorded by quarterly-reporting NCAs (n=13) via given reporting channels. "NCA"=Reports lodged directly by consumers with NCAs. "Firms"=Complaints recorded by NCAs via firms. "Average total"=average total number from 2Q21 to 2Q23.
Sources: ESMA complaints database.

Infrastructures and services

Cyber incidents: Elevated levels

Publicly-acknowledged **cyber incidents** in the financial sector globally have been at elevated levels over the last 2Y (Chart A.130). Russia's war of aggression against Ukraine continues to pose the risk of escalation, including widespread cyberattacks against entities based in the EU. At the same time, cybercrime poses an ongoing threat.

Trading venues: Moderate decrease in volumes

During 2H23, **equity trading volumes** showed a decrease with respect to 1H23 (- 13 % on monthly average), as volatility remained low and the economic outlook remained characterized by uncertainty. However overall volumes in 2H23 were only slightly below those observed in 2H22 (- 1 % monthly average). In terms of composition, activity on EEA systematic internalisers increased marginally (+ 1.6 % relative to 1H23), while the relative share of OTC decreased by the same amount. The share of trading in lit markets, dark pools and periodic auctions remained broadly stable (Chart 34).

Clearing and settlement: CCP margins stabilise

One and a half years after the start of the application of cash penalties under the central securities depositories regulation (CSDR) (February 2022) **settlement fails** are occurring less frequently, particularly for corporate bonds, down to 11 % in 2H23 (from 21 % in 2H22), and for equity instruments, down to 10 % in 2H23 (from 19 % in 2H22, Chart 37). However, for equity instruments most of this impact occurred in 1H23 with no further noticeable declines in 2H23. ESMA, together with the NCAs, is closely monitoring settlement fails in the EU, and will also assess the impact of the US move to T+ 1, foreseen in May 2024[23]. Following the requests for technical advice from the Commission on potential amendments to the CSDR penalty mechanism, ESMA has published a consultation paper to gather feedback on ESMA's preliminary proposals, and on the effectiveness of the current penalty mechanism in discouraging settlement fails and incentivising their rapid resolution[24].

Central counterparty (CCP) margin levels stabilised in 2H23, after a decline in 1H23 for commodities in line with the decline in energy price and volatility. Interest rate related derivatives margins also stabilised in 2H23 at a lower level than in 1H23, in line with the stabilising outlook on future policy rates in Europe or the US. Going forward, the build-up of leveraged short positions in US Treasury or other sovereign futures will need to be closely monitored because of the margin spirals it could potentially trigger[25], even though first evidence shows that this phenomenon is for now limited in the EU.

Credit rating activity: Fewer new EEA ratings

The total number of outstanding ratings remained largely unchanged over the second half of 2023, with 49,000 new ratings issued and a similar number of existing ratings removed, 48,000, as debt matured or as ratings were withdrawn. Rating issuance was markedly lower than in 1H23, when about 59,000 new ratings were issued.

Of the new ratings issued in 2H23, about 16,000 were for EEA issuers or instruments, compared to over 17,000 in 1H23. In 2H23, 84 % of the new EEA ratings were for corporates, 9 % for sovereigns and almost 7 % in structured finance. These proportions are similar to earlier periods. Outstanding EEA ratings grew by about 4,000 ratings, less than growth of 5,500 in 1H23. Growth was predominately in corporate financial and structured finance ratings (Chart 39).

The majority of new ratings for EEA debt were issued by **smaller CRAs,** with 63 % issued by

[23] ESMA will publish a report on the potential shortening of the settlement cycle in the course of 2024 taking into account the input from ESMA's call for evidence on this topic in 2H23.

[24] ESMA intends to publish the final report on the technical advice to the Commission on the CSDR penalty mechanism in September 2024.

[25] See BIS (2023), "Margin leverage and vulnerabilities in US Treasury futures", BIS quarterly review, September.

CRAs not in the 'big three' (Fitch, Moody's, and Standard and Poors), contributing to the ongoing very gradual fall in the share of the big three CRAs in outstanding ratings (Chart A.146). However, the three **largest CRAs** continued to issue almost all of the ratings solicited by the debt issuer (88 % of in 2H23, up 6 ppt from 1H23).

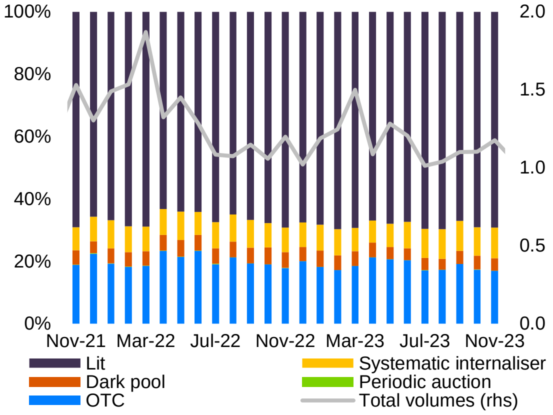
Regarding **rating actions** on EEA issuers and debt, there was an increase in the number of affirmations. Affirmations increased from 37,000 in 1H23 to 44,000 in 2H23. Upgrades increased significantly to 9,000 from 4,300, a jump associated mostly to corporates. Downgrades remained largely unchanged at 3,000, with an increase in corporate downgrades of about 800 being offset by a fall in sovereign downgrades. For structured finance, downgrades remained low, up slightly from 104 to 109, while upgrades were also up from 762 to 1,040 in 1H23.

Key indicators

Chart 34

Equity trading volumes

Moderate decrease amid stable composition

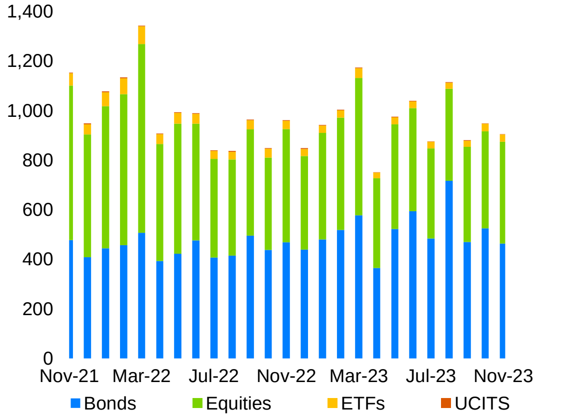


Note: Type of equity trading in the EEA as a percentage of total equity turnover. Total equity trading turnover in EUR trillion (rhs). Last available data point is November 2023.
Sources: FIRDS, FITRS, ESMA.

Chart 35

Turnover by asset type

Drop in equity share of on-exchange turnover

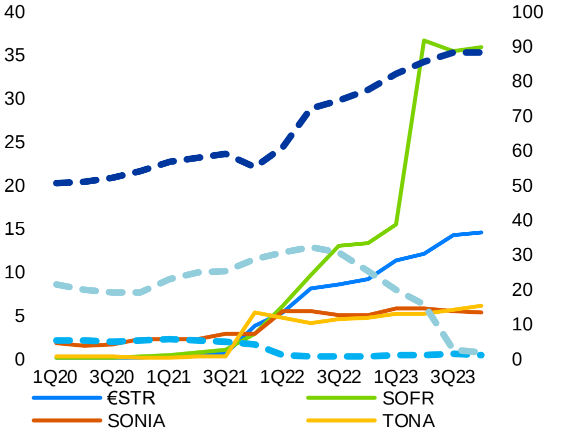


Note: Monthly turnover on EEA30 trading venues by type of assets, in EUR bn. Data for Aquis Exchange, CBOE Europe Equities, Equiduct, London Stock Exchange and Turquoise are not reported for bonds, ETFs and UCITS.
Sources: FESE, ESMA.

Chart 36

Interest-rate derivatives linked to new risk-free rates

Continued uptake

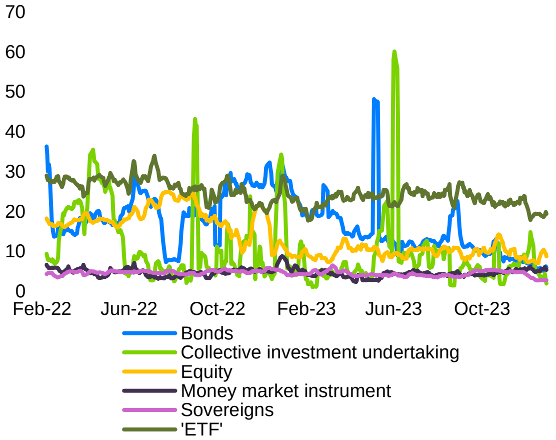


Note: Gross notional amount of IRD outstanding referencing benchmarks, EUR tn.
Sources: TRs, ESMA

Chart 37

Settlement fails in EEA central securities depositories

Broadly stable in 2H23 after 1H23 fall

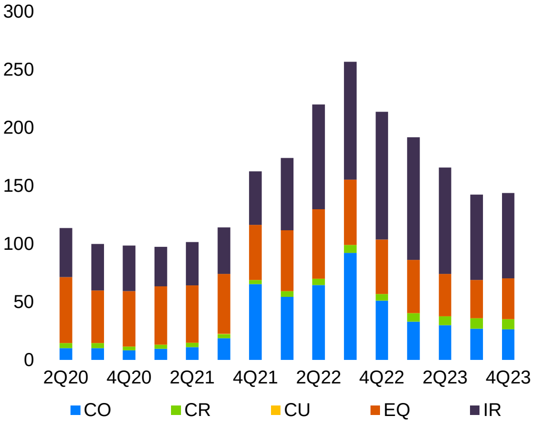


Note: Settlement fails as a % of total value of settlement instructions at EEA level. One-week moving averages. Extreme values removed.
Sources: ESMA.

Chart 38

Initial margins collected by EU CCPs by asset class

Commodity and interest rate margins down

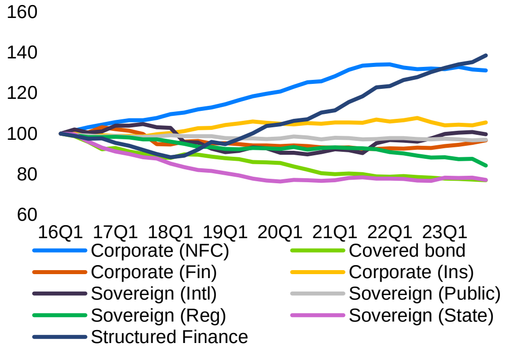


Note: Outstanding amounts of intital margin required and excess collateral received by EU27 CCPs for derivatives . in EUR bn.
Sources: TRs, ESMA.

Chart 39

Outstanding ratings

Growth in financials and structured finance



Note: Evolution of the number of outstanding EEA issuer and instrument ratings by debt category, indexed 1Q16=100. S&P, Moody's and Fitch. NFC- non financial, Fin - financial, Ins - insurance, Intl - international, Reg - regional. Supranational sovereigns omitted due to very small population.
Sources: RADAR, ESMA.

Structural developments

Market-based finance

Debt securities issuance dominates

Trends in market-based financing during 2H2023 were broadly in line with the first half of 2023, when financing availability rebounded from the 2H22 lows. Primary bond markets remained a significant source of access to funding for European corporates. Equity primary markets continued to be very challenging for initial public offerings (IPOs), with activity concentrated in secondary offerings by already publicly listed firms.

Although access to capital markets has improved in 3Q23, EA enterprises still continue to report a further moderate widening in the financing gap, mostly driven by increased needs for external financing combined with lower availability[26]. The general economic outlook and firm-specific factors were the main drivers regarding the lower availability of external financing.

Equity issuance: Low IPOs

Overall equity market issuance during 2H23 slightly picked up at the end of the year after remaining subdued for most of the period. The total amount of issuance in primary equity markets for 2H23 stood at EUR 38bn, 10 % more than 2H22.

Out of this, only 6 % of the deals (24) were **IPOs**, for a total amount of EUR 4.3bn (57 % less than in 2H22). Total EEA IPO issuance in 2023 stood at slightly more than EUR 6bn, the lowest levels observed since 2012 (EUR 6.1bn). More than 40 % of the IPOs (10) were concentrated within industrial firms, a sector that has been particularly outperforming in secondary markets overall in 2023. Almost half of EEA IPOs (11) during 2H23 were in IT. Low IPO activity in a market environment characterised by large uncertainty about the economic environment and markets adapting to a higher for longer interest rate environment is not surprising. Companies with plans for IPOs tend to wait until the broader market outlook improves and uncertainty recedes. Some firms also preferred to list in the US, where investors seemed less risk averse[27].

Equity issuance was mostly concentrated in secondary offerings, albeit at a slower pace than during 1H23. There were 402 **follow-on** issuances were observed in 2H23 with a total volume of EUR 34bn (+ 37 % compared to 2H22, but 3 % less than the activity in 1H23). The predominance of secondary offerings may be linked to investor preference for deals in already established companies in the context of sustained macrofinancial uncertainty[28].

Strong corporate bond issuance

Corporate bond issuance remained strong in 2H23, with total volumes of EUR 768bn (+ 24 % and - 18 % respectively compared to 2H22 and 1H23). As of December 2023, yearly dealmaking activity (EUR 1.7tn) in bonds had surpassed that of 2022 (EUR 1.3tn) and reached the record levels of 2021 (EUR 1.6tn). More than half of 2H23 issuance was in non-rated bonds (EUR 428bn or 56 %). Among rated bonds, issuance was mainly concentrated in IG bonds (EUR 293bn or 86 %). On a yearly comparison, however, in 2023 HY issuance picked up (EUR 94bn out of which EUR 46bn in 2H23) standing above 2022 levels (EUR 53bn). Overall, the average credit quality at issuance remains at A-. A monthly issuance peak was observed in September, potentially linked to issuance ahead of interest rate decisions by major central banks[29].

After observing record levels in 1H23, issuance of **short-term bonds** slightly declined below the levels observed in 2H22 to EUR 855bn (- 17 %). Moreover, the average weighted maturity at issuance for longer-term bonds confirms the preference for shorter maturities (down to 6 years as in December 2023 from 7 years in June 2023

[26] See ECB (2023), 'Survey on the access to finance of enterprises in the euro area' – September 2023 to October 2023. The financing gap indicator combines both financing needs and the availability of bank loans, credit lines, trade credit, and equity and debt securities issuance at firm level.

[27] See also Financial Times (2023), 'European IPOs fall to lowest level since 2009', August.

[28] See also Ernst & Young (2023), 'EY Global IPO Trends Q3 2023', September.

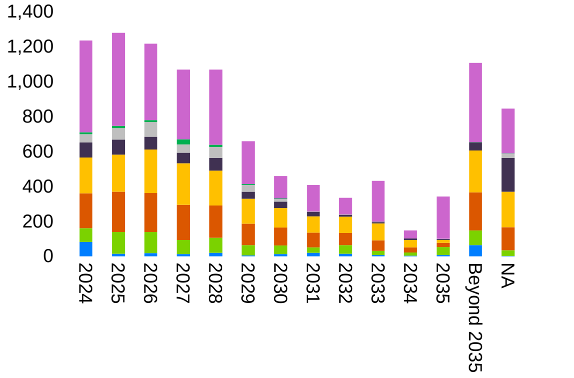
[29] See also Financial Times (2023), 'US and European companies rush to issue debt before rate decisions', September.

and 9 years in January 2023). These trends are similar to those in the US, where maturities declined to historical lows as companies are adapting to funding strategies to avoid paying high coupons for longer and hoping that borrowing costs will decline going forward[30].

Corporate maturity wall from 2024

The new interest-rate conditions are set to weigh particularly on corporates with debt maturing in 2024 and 2025. The corporate bond outlook will be shaped by a significant upcoming **maturity wall** from 2024 until 2028, with a peak in 2025 (Chart 40). In the next five years, EEA corporates are expected to repay more than half of the total outstanding amount of corporate bonds (EUR 5.9tn or 55 % of the total). Within the rated debt that is due in this period, EUR 1.1tn are in BBB-rated bonds and EUR 0.7tn in HY. In this context, corporate debt sustainability continues to remain a considerable risk, especially in lower quality segments.

Chart 40
Outstanding debt by rating and maturity year
Peak in 2025

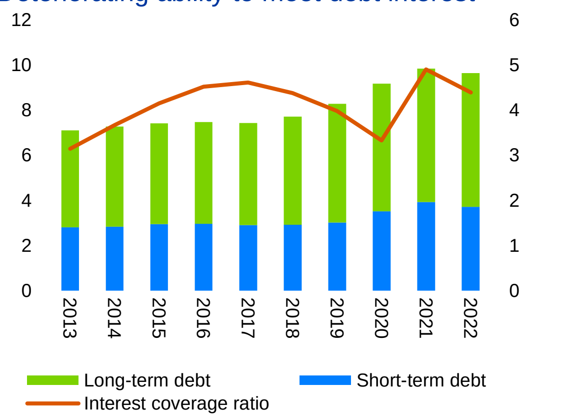


Note: Total outstanding amount of corporate bonds by rating and year of maturity, in EUR bn. NA includes issuance amounts for corporate bonds whose maturity date is not available.
Sources: Refinitiv Eikon, ESMA.

Concerns about corporate debt sustainability are corroborated by an analysis of balance sheets by listed EEA firms, which also shows increased levels of debt. Both debt levels and the ability of listed firms to meet interest expenses on debt (measured through the interest coverage ratio, ICR) have deteriorated over recent years. The median ICR declined to 4.3 % during 2022 from very high 2021 levels of 4.9 %. However, ICR levels are high from a longer-term perspective and still remain elevated for some firms (Chart 41).

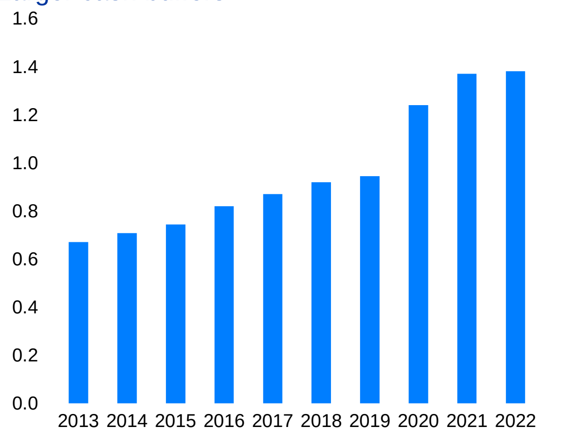
On the other hand, the peak in debt levels also coincides with a significant increase in cash held by listed EEA firms (Chart 42). As of the end of 2022, cash levels increased by 46 % compared to 2019. This tendency shows that firms have been building large cash buffers either to face the upcoming maturity wall or to hedge against potential unexpected shocks.

Chart 41
Total debt and interest coverage ratio
Deteriorating ability to meet debt interest



Note: Short-term and long-term debt held by EEA listed firms, in EUR tn, and median interest coverage ratio, in % (rhs).
Sources: Refinitiv Datastream Worldscope, ESMA.

Chart 42
Total cash held by listed firms
Larger cash buffers



Note: YoY growth of total cash held by EEA listed companies, in EUR tn.
Sources: Refinitiv Datastream Worldscope, ESMA.

30 See also Financial Times (2023), '[US companies opt for short-term debt in bet that yields have peaked](#)', September.

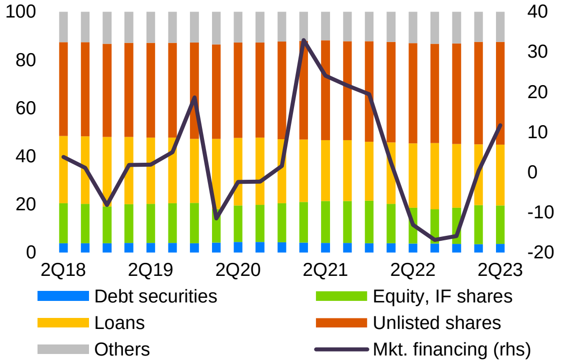
Large increase in securitisation issuance

According to industry data, the issuance of **securitised products** surged in 2Q23, almost touching the peaks of 4Q21. Overall, EUR 95.4bn of both placed and retained securitised products were issued in Europe, a 165 % increase from 1Q23 and a 176 % increase from 2Q22. Issuance then normalised to EUR 39.5bn in 3Q23. However, this increase was driven by a large transaction (retained), which means that excluding this deal, total securitisations issuance would have increased only by 32.8 % YoY. In addition, the quarterly issuance of "Significant Risk Transfer" securitisations, aiming at transferring the risk to claim capital relief, reached EUR 20.4bn in 2Q23, an increase of 48.4 % from 1Q23 (+ 131.6 % YoY).

Within securitised products, **collateralised loan obligations (CLOs)** issuance doubled the 2022 amounts (EUR 26bn vs. EUR 13 bn in 2022). According to JP Morgan data, total CLO issuance in 2H23 totalled EUR 14.5bn, 23 % more than in 1H23.

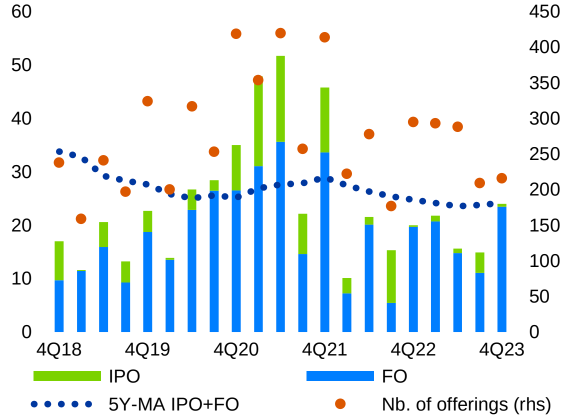
Key indicators

Chart 43
Market financing
Rebound in market financing availability



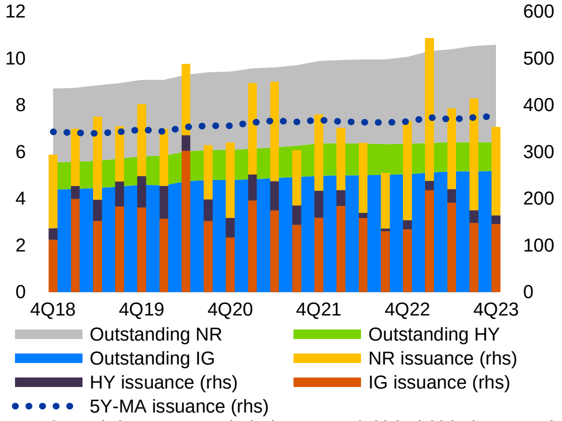
Note: Liabilities of EA non-financial corporations (NFC), by debt type as a share of total liabilities. Others include: financial derivatives and employee stock options; insurance, pensions and standardised guarantee schemes; trade credits and advances of NFC; other accounts receivable/payable. Mkt. financing (rhs)= annual growth rate in debt securities, equity and investment fund (IF) shares, in %.
Sources: ECB, ESMA.

Chart 44
Equity issuance
Mostly follow-on issuance



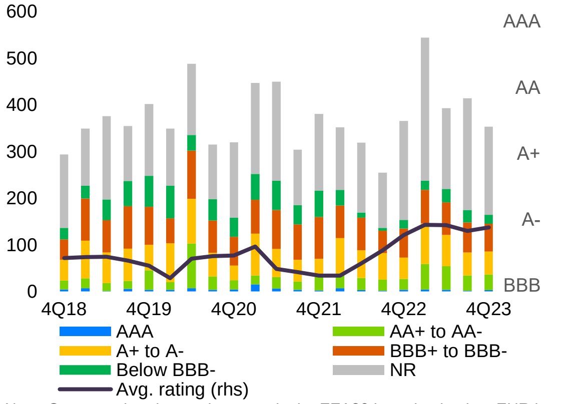
Note: Equity gross issuance in the EEA30 by type, EUR bn, and number of equity offerings. 5Y-MA=five-year moving average of the total value of equity offerings.
Sources: Refinitiv EIKON, ESMA.

Chart 45
Corporate bond issuance and outstanding
Increasing outstanding debt



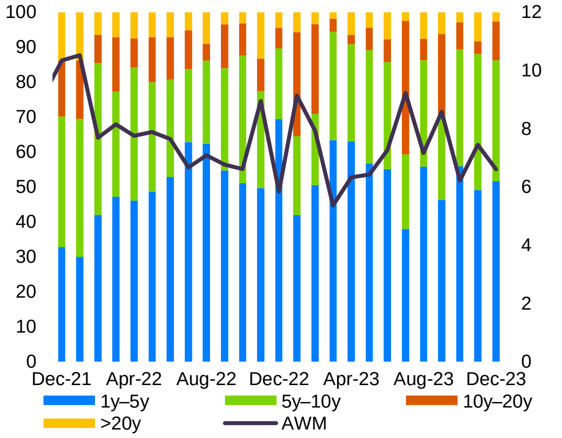
Note: Quarterly investment-grade (rating >= BBB-), high-yield (rating < BBB-) and non-rated corporate bond gross issuance in the EEA30 (rhs), EUR bn, and outstanding amounts, EUR tn. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Chart 46
Corporate bond issuance by rating class
Credit quality stable at A -



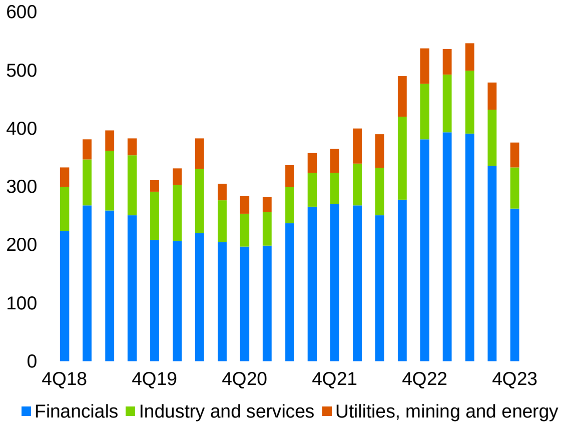
Note: Corporate bond gross issuance in the EEA30 by rating bucket, EUR bn. Avg. rating=weighted average rating computed as a one-year moving average of ratings converted to a numerical scale (AAA=1, AA+=2, etc.) excluding non-rated bonds. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Chart 47
Corporate bond issuance by maturity bucket
Issuance at shorter maturities



Note: Monthly share of corporate bond issuance by maturity bucket, in % (lhs) and average weighted maturity at issuance (AWM), in years (rhs).
Sources: Refinitiv Eikon, ESMA.

Chart 48
Short-term bond issuance by sector
Slowdown but still at elevated levels



Note:Short-term corporate debt gross issuance in the EEA30 by sector, EUR bn. Short-term=Maturities < 12 months.

Sustainable finance

Effects of greenwashing risks beginning to show

Following several years of uninterrupted growth, the uptake of ESG investing and growth of ESG-related instruments have levelled off in recent quarters. While the strong investor appetite for all ESG products in 2020 and 2021 had shown resilience to challenging market conditions in 2022, the combination of central bank tightening, a weak economic outlook and growing public scrutiny of sustainability claims[31] seems to be taking a toll on ESG market growth. With the first outflows from ESG funds in 2023, greenwashing risk, unless prevented effectively, may undermine investor confidence.

The market for **ESG bonds** continued to grow, albeit at a slower pace, with a total outstanding value of EUR 1.9tn in December 2023, up 21 % in one year (Chart 52). However, issuance volumes were significantly lower, with green bonds – which account for most of the ESG bond market – seeing a 34 % decline between 2H22 and 2H23, mainly driven by lower public sector issuance.

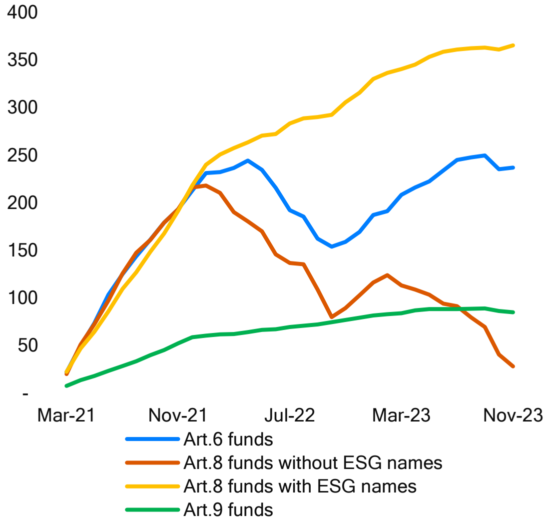
The previously observed drop in corporate ESG bond issuance continued, down 15 % in 4Q23 from a year earlier, starkly contrasting with a 50 % increase in the overall corporate debt issuance over the same time. The drop was visible across all ESG bond types, except sustainability bonds (+ 117 %). Plagued by negative media coverage and greenwashing allegations, sustainability-linked corporate bond issuance in particular saw issuance volumes decline by 41 % in 2023.

The financial impact of greenwashing occurrences is not fully understood yet, therefore the link between greenwashing risk and the appetite for ESG bond issuance is not clear at this stage. In a recent analysis, ESMA found that **greenwashing-related controversies** – a proxy measure of greenwashing perceptions – did not have a systematic impact on the stock returns or valuation of firms involved in the controversies, highlighting the absence of clear market-based incentives to prevent greenwashing behaviour[32].

Meanwhile, the appetite for **ESG investment products** available in the market appears to have come to a halt. In 4Q23, the sustainable finance disclosure regulation (SFDR) Article 9 funds with a sustainable investment objective faced net outflows for the first time (EUR - 2bn through the end of November, equivalent to - 1 % of AuM). SFDR Article 8 funds promoting environmental or social characteristics also faced accelerating outflows, worth EUR 39bn (-0.6 % of AuM), taking cumulative outflows from these funds since March 2023 to EUR 67bn.

The realisation that the SFDR definition of Article 8 products applied very broadly may have led investors to opt for different selection criteria in their investment allocations, with the use of ESG-related terms in fund names becoming a key element of distinction: since February 2022, SFDR Article 8 funds with ESG words in their names saw cumulative inflows of EUR 125bn, compared with outflows of EUR 190bn for Article 8 funds *not* using ESG terms in their names (Chart 49).

Chart 49
EU fund flows by SFDR disclosure regime
Outflows from Art. 8 funds without ESG names



Note: Cumulative net flows into EU-domiciled funds (excluding MMFs) by SFDR fund type since SFDR started to apply, EUR bn. Article 8 funds split between funds using ESG-related terms in their names and funds not using such terms.
Sources: Morningstar, ESMA.

The signalling power of investment product names for retail investors, combined with the size of the EU market for ESG funds (SFDR Article 8

[31] See ESMA (2023), Report on Trends, Risks and Vulnerabilities, No1-2023, February.

[32] See ESMA (2023), 'The financial impact of greenwashing controversies', December.

and 9 funds managed 58 % of UCITS fund assets in November) and the growing use of ESG-related language[33] highlight the importance of ensuring alignment between the name, investment strategy and portfolio holdings of funds.

ESG data availability starting to improve

A major development in this respect is the large amount of public **sustainability-related information** that EU supervised entities started reporting in 2023 ('ESG disclosures'). The 1,500 largest EU NFCs began reporting on their alignment with the EU Taxonomy, providing insight into the greenness of their activities and investment efforts to transition to low-carbon. Financial market participants must also report on the Taxonomy alignment of the financial products sold to investors, which will help investors make informed decisions in line with their sustainability preferences. In addition to this, Principal Adverse Impact (PAI) disclosures can help investors to benchmark the negative environmental and social impacts of these products (Textbox 3).

Textbox 3

SFDR Principal Adverse Impact disclosures – a step towards increased transparency

The SFDR requires large financial market participants to consider and disclose PAI indicators at entity level. PAI disclosures at the financial product level are voluntary, although financial products that make sustainable investments under SFDR Article 9 must show how those investments do not significantly harm any environmental or social objective by taking into account the PAI indicators. These disclosures can significantly enhance transparency around funds' sustainability risk and impacts, thus boosting the overall credibility of sustainable investing. However, their success in doing so will depend on clear and accurate reporting.

PAI statements at the entity level have to be published by financial market participants using templates developed by the ESAs[34]. Voluntary PAI disclosures at product level can be made available through the European ESG Template (EET)[35]. Additionally, third-party data providers calculate their own estimates to provide a more complete overview of the landscape. While such estimates come with their own limitations, they can significantly improve data coverage: PAI indicators based on estimates from Morningstar-Sustainalytics are available for 69 % of funds on average, compared with 37 % for PAI disclosures through the EET (based on a sample of 30,119 funds including 3 % of SFDR Art. 9 funds, 42 % of SFDR Art. 8 funds and 55 % of SFDR Art. 6 funds, for a combined EUR 11tn in AuM).

PAI coverage of funds portfolio

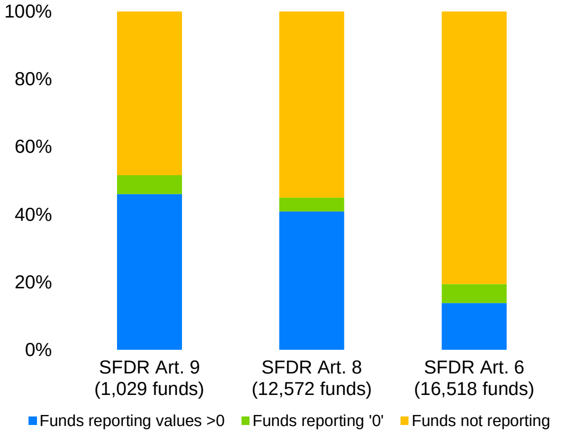
PAI indicators can help investors compare the negative environmental and social footprint of investment products. The share of eligible portfolio assets – reported with each PAI indicator – allows investors to assess the extent to which the impact values represent a fund's full portfolio. Looking at EET data on Scope 1 greenhouse gas (GHG) emissions, only a quarter of funds (excluding '0' values) disclose the percentage of eligible assets for this PAI, while this information is available for three quarters of the funds when looking at the data provider estimates. This stark difference speaks in favour of leveraging both reported data and estimates, yet it also increases dependency on third-party providers whose reliance on proprietary methodologies may lead to inconsistent interpretations of the data. As an illustration, we observe that for 45 % of funds, the portfolio eligibility values differ by more than 10pps between EET data and the provider's estimates.

Availability of impact disclosures

Mirroring the findings above, the availability of impact disclosures across PAI indicators[36] leaves room for improvement, ranging from 45 % for Art. 9 SFDR funds to 40 % for Art. 8 SFDR funds, and 18 % for Art. 6 SFDR funds. This is true even for relatively standardised metrics such as portfolio GHG emissions, however with highly pronounced differences between SFDR fund types (e.g. 45 % of Art. 9 funds vs. 14 % of Art. 6 funds for scope 1 GHG emissions (Chart 50). The relatively low number of funds reporting these values limits investor's ability to compare funds' sustainability impacts. Moreover, questions arise regarding the credibility of the disclosed information: 5 % of all funds report '0' portfolio emissions, while comparing the Morningstar estimates with the EET reported values reveals a misalignment of more than 10pps for 95 % of the funds[37]. This possibly reflects the lack of standardised methodologies, leading to inconsistent calculations and estimates[38]. These observations equally apply to scope 2 and scope 3 GHG emissions.

Chart 50

SFDR disclosures : Scope 1 GHG emissions
Low share of funds reporting CO2 data



Note: Share of funds reporting Scope 1 (direct) greenhouse gas emissions under SFDR, by SFDR fund type, in %.
Sources: Morningstar, ESMA.

[33] See ESMA (2023), 'ESG names and claims in the EU fund industry', October.

[34] The SFDR Templates are published in editable formats by the ESAs.

[35] The EETs are industry-developed templates bringing together ESG data reported under several EU regulations. EET information can be downloaded from some data providers in its original form.

[36] Based on 14 PAI indicators that are mandatory to disclose at entity level.

[37] Based on a sample of 26 % of funds for which the data is available through both the EET and Morningstar estimates.

[38] See Busch et al. (2020), Corporate carbon performance data: Quo vadis? *Journal of Industrial Ecology,* Vol.26(1), 350-363.

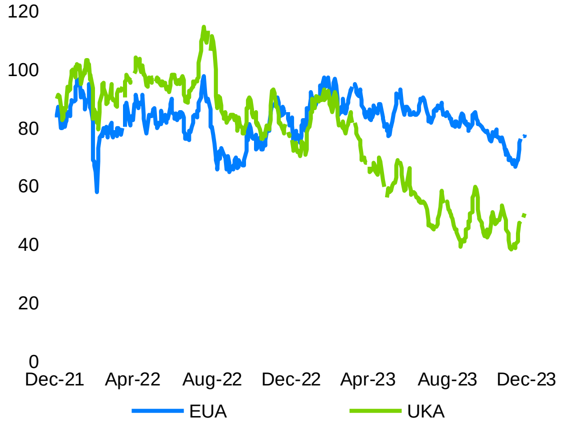
Overall, these initial findings show how PAI disclosures can serve as an important source of information to support investment decisions, by providing a wide range of information on negative sustainability impacts. However, a preliminary analysis of PAI disclosures shows that there is ample room for improvement. Increasing the quality and reliability of the information will be important to enhance transparency and ensure the credibility of the funds' sustainability claims. At the same time new (e.g. AI-based) assessment tools available to investors and increased experience in reporting against PAIs should help mitigate current data quality issues.

Carbon prices soften

The price of **EU emission allowances** (EUAs) declined in the second half of 2023 from about EUR 85/tCO_2 (total carbon dioxide content) in July to EUR 71/tCO_2 in December (Chart 57), as slower economic activity weighted on the outlook for energy demand and power generation from renewable energy sources continued to increase. Investment funds nearly doubled their short futures positions over the second half of the year, with a net ratio of 2 open short positions for each long position.

From May 2023, the price of UK emission allowances (UKAs), which remained close to EUAs since the inception of the UK Emissions Trading System, started to diverge significantly. The price difference continued to widen during the second half of the year to an average of EUR 34/tCO_2, a nearly 50 % discount to EUA prices (Chart 51). The fall of UKA prices is largely attributed to lower UK power demand due to a weaker economic outlook as well as to an upcoming reform of the UK's Emissions Trading System, reflecting the recent revision of climate policy objectives[39]. Should the difference persist, it would lead to additional costs on UK exports to the EU starting in 2026 when the penalty mechanism of the EU carbon border tax starts applying[40].

Chart 51
Prices of EU and UK emission allowances
Prices decoupled



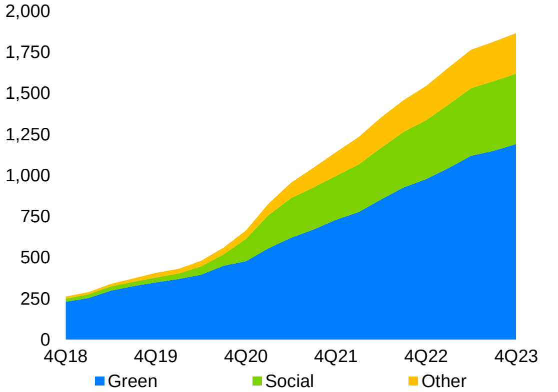
Note: Daily futures price of EU emission allowances (EUA) and UK emission allowances (UKA) traded on ICE Europe, in EUR per tonne of CO2.
Sources: Refintiiv Eikon, ESMA.

[39] See BBC (2023), 'UK net zero targets 'harder to achieve' after PM's speech – advisers', October.

[40] See Reuters (2023), 'UK carbon price plunge raises risk of green levies on exports to EU', August.

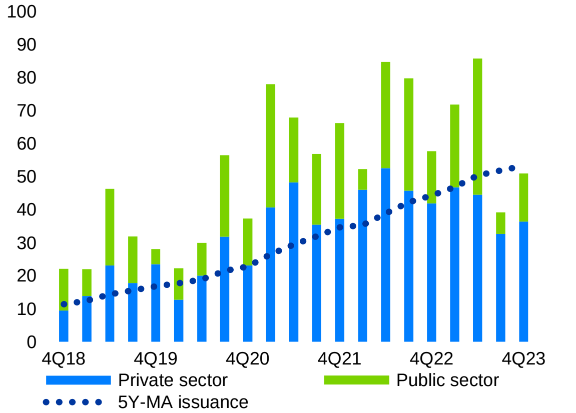
Key indicators

Chart 52
EU ESG bonds outstanding
Market grows at slower pace



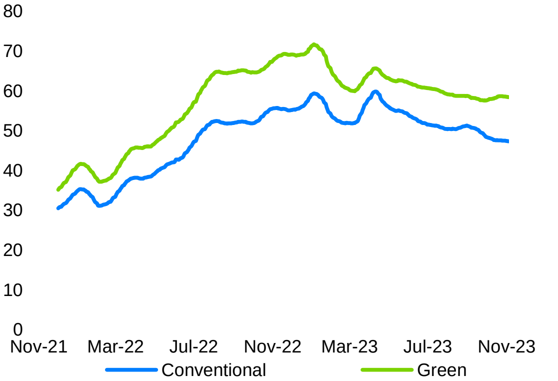
Note: Total amount of ESG bonds outstanding issued by EEA30-domiciled issuers, EUR bn.
Sources: Refinitiv EIKON, ESMA.

Chart 53
Green bond quarterly issuance
Green bond public issuance contracts in 2H23



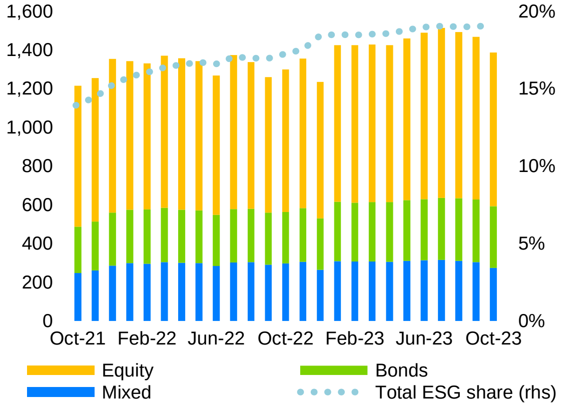
Note: Green bond gross issuance in the EEA30 by sector, EUR bn.
Sources: Refinitiv EIKON, ESMA.

Chart 54
Corporate green bond and conventional bond liquidity
Bid-ask spreads widen again slightly



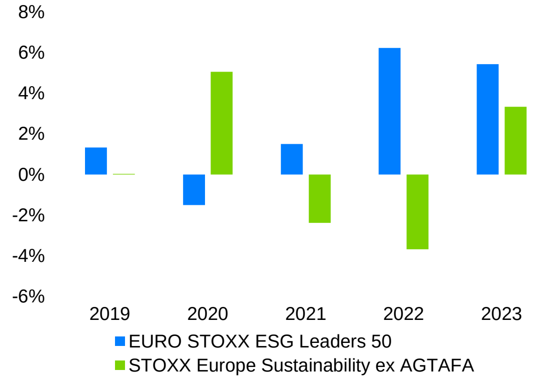
Note: One-month moving average of the bid-ask spread of green and conventional bonds from green bond issuers included in the Markit iBoxx EUR Corporate bond index, in bps.
Sources: IHS Markit, ESMA.

Chart 55
ESG fund assets
Lower ESG fund AuM, stable market share



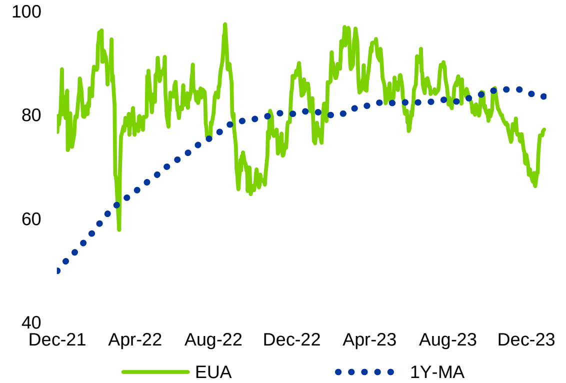
Note: AuM of EU-domiciled ESG funds by type of fund, EUR bn, and share of ESG fund AuM in total fund AuM (rhs), in %.
Sources: Morningstar, Refinitiv Lipper, ESMA.

Chart 56
ESG vs. broad market index performance
ESG indices outperformed in 2023



Note: Annual returns of the STOXX ESG Leaders 50 index (best-in-class strategy) and STOXX Europe Sustainbility ex Alcohol, Gambling, Tobacco, Armaments & Firearms, and Adult Entertainment (AGTAFA, positive screening and exclusion-based strategy) measured as relative difference to the STOXX Europe 600, in percentage points
Sources:Refinitiv Datastream, ESMA.

Chart 57
Emission allowance prices
Carbon prices decreased



Note: Daily settlement price of European Emission Allowances (EUA) on European Energy Exchange spot market, in EUR/tCO2.
Sources: Refinitiv Datastream, ESMA.

Financial innovation

Crypto rally continues

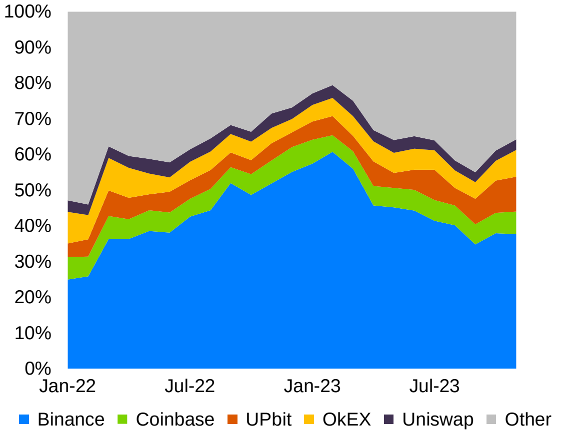
Crypto-assets continued their recovery from early 2023 reaching a total **market capitalisation** of EUR 1.5tn in December, representing a doubling year on year, but still 50 % below the November 2021 peak (Chart 62). The rebound was largely fuelled by the revived hope that a spot Bitcoin ETF might be approved in the US in the wake of Grayscale's court victory against the US SEC[41]. This hope became reality when the US SEC approved 11 spot Bitcoin ETFs on 10 January 2024[42]. In November, Binance, the world's largest crypto-asset exchange, pleaded guilty to violating US anti money-laundering requirements and agreed to pay a fine of USD 4.3bn. Its CEO also pleaded guilty and subsequently stepped down[43]. The announcement sent Binance's native token temporarily tumbling by around 10 % while the wider crypto market remained broadly stable, suggesting that the settlement was perceived in an overall positive vein. Bitcoin's market share increased further following these developments and now stands at 50 % (+ 10pp YoY).

Trading volumes slightly increased over 2H23 (Chart 63) and Binance's market share continued to decline from its peak of above 60 % in February to below 40 % in December 2023 (Chart 58).

The market capitalisation of **stablecoins** stabilised at around EUR 120bn after more than a year of continued outflows (Chart 64). The dominant position of Tether increased even further to almost 70 %, as it continued to attract new users, while its largest competitors Binance USD and USD Coin saw outflows. New challengers such as True USD or First Digital USD failed to gain notable ground with market capitalisations of around EUR 2bn and EUR 1.5bn respectively.

Total value locked in **decentralised finance (DeFi)** protocols fell to a low of USD 35bn in October, before recovering to around USD 60bn at year's end. DeFi's share in the overall crypto system now stands at 4 % (- 1pp YoY) while DeFi exploits remain an ongoing concern, with lost value due to exploits reaching almost USD 1bn in 2H23 (Chart 67). Two ESMA risk articles published in October discuss recent market developments and risks stemming from DeFi in greater detail[44] and propose a categorisation of smart contracts[45].

Chart 58
Market share of crypto-asset exchanges
Binance market share declines



Note: Market shares of major crypto-asset exchanges, in % of trading volume.
Sources: Kaiko, ESMA.

The value of **exchange traded products** with crypto or crypto-futures as underlying increased, driven by market valuations to a total NAV of EUR 46bn globally (+ 50 % YoY). Notably, the US-based Grayscale investment trust alone represents about 70 % of those ETPs. Products available in Europe represent less than 15 % of global ETPs. Open interest for **regulated Bitcoin futures** at the Chicago Mercantile Exchange (CME) further increased in 2023 and now stands at USD 3.5 bn, making CME the second largest exchange for cash settled Bitcoin futures after Binance[46].

Publicly traded **tokenised bonds** remain marginal, with an outstanding notional of around USD 1.2bn (+ 70 % YoY) and global net issuance reaching USD 500mn in 2023 (+ 15 % YoY, Chart 66).

41 Bloomberg (2023), 'Grayscale Gets Court Order in Fight With SEC on Bitcoin ETF', October.

42 Financial Times (2024), 'SEC approves first spot bitcoin ETFs in boost to crypto advocates', January.

43 Reuters (2023), 'Binance's Zhao pleads guilty, steps down to settle US illicit finance probe', November.

44 ESMA (2023), 'Decentralised Finance in the EU: Developments and risks', October.

45 ESMA (2023), 'Decentralised Finance: A categorisation of smart contracts', October.

46 Coindesk (2023), 'CME on the Cusp of Replacing Binance as Top Bitcoin Futures Exchange', October.

ESMA's **risk assessment framework** scores crypto-assets along six dimensions and allocates a current risk level together with a short to medium-term risk outlook (Table 1). At present, liquidity risk, market risk, internal contagion risk, and operational risk are of "highest" concern. Credit risk is "moderate" while external contagion risk to the wider financial system continues to remain "low", mainly due to crypto-assets' relatively small market size and limited interlinkages with traditional markets.

Compared to the 1H23 risk scoring, we have upgraded liquidity risk from "moderate" to "high", due to continuously low market liquidity which increases the propensity of single trades to affect prices. While operational risk remains "high", ESMA has adjusted the medium-term outlook from negative to stable as enforcement and regulation of the crypto system improve and crypto-native firms are increasingly forced to comply with legal requirements. The recently published IOSCO recommendations for crypto and digital assets represent an important milestone in that respect[47].

Table 1
ESMA framework for crypto-asset risks
Medium-high risk with negative outlook

	Level	Outlook
Liquidity	■	→
Market	■	→
Credit	■	↗
Contagion (internal)	■	→
Contagion (external)	■	↑
Operational	■	→

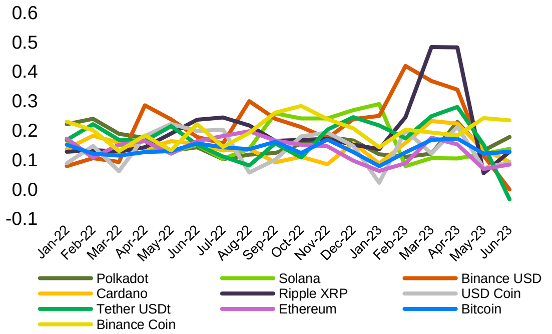
Note: Colours indicate current risk intensity. Coding: green = potential risk; yellow = elevated risk; orange = high risk; red = very high risk. Upward-pointing arrows = increase in risk intensity; downward-pointing arrows = decrease in risk intensity; horizontal arrows = no change. The outlook refers to the forthcoming half year. The ESMA risk assessment is based on quantitative indicators and analyst judgements.
Sources: ESMA.

Textbox 4
Crypto-assets and social media
Besides playing a pivotal role in the promotion of crypto-assets among retail investors, social media has also influenced crypto asset pricing and market trends. We analysed the monthly average sentiment of tweets between January 2022 and June 2023 relating to each of the ten largest crypto-assets (by market capitalisation as of November 2023). This sentiment mostly reflects events affecting each crypto-asset, potentially amplifying their effect.

It should be noted that sentiment of tweets is rather positive for each of the crypto-assets being considered, with the notable exception of Tether USD in June 2023, which can be attributed to the temporary de-peg of the crypto-asset from the USD (in this regard, we should note that Chow-White et al. (2021), who analysed the public discourse on crypto-assets on social media and especially on the platform formerly known as Twitter, find this discourse to be predominantly positive, beside promotional in nature)[48]. We should also note that at times a rise or drop in sentiment is not reflective of events occurring outside the social media community, but is, in fact, self-driven by the community itself. In this regard, we should note the case of Ripple (related crypto-asset is XRP), a company which since December 2020 has been embroiled in an ongoing legal case against the U.S. SEC. Somehow, towards mid-March 2023 and until the following month, XRP investors grew confident that Ripple would soon win the landmark legal case. Indeed, in March 2023, the sentiment of tweets relating to Ripple/XRP increased by 97 %, leading to a bullish frenzy which, in turn, led to a 43 % increase in XRP/USD price between 15 March and 30 March.

While social media can help retail investor gather information on developments affecting crypto-assets, and on their trends, they can also be susceptible to exploitation for market manipulation, potentially posing risks to investor protection. In the absence of a regulatory framework, 'FinFluencers' (financial influencers) can exert significant leverage on online communities of crypto enthusiasts, occasionally inciting market frenzies that exacerbate the volatility that already characterises crypto-assets.

Chart 59
Twitter sentiment for the top crypto-assets
Mostly positive, very volatile



Note: Monthly average sentiment of tweets relating to each of the ten largest cryptocurrencies by market capitalisation as of November 2023 (Jan 2022 – Jun 2023). For a cryptocurrency and a specified period of time, the average sentiment is given by the estimated number of positive tweets relating to said cryptocurrency minus the estimated number of negative tweets, divided by the total number of tweets relating to the cryptocurrency published the specified period of time.
Sources: Stockpulse, ESMA.

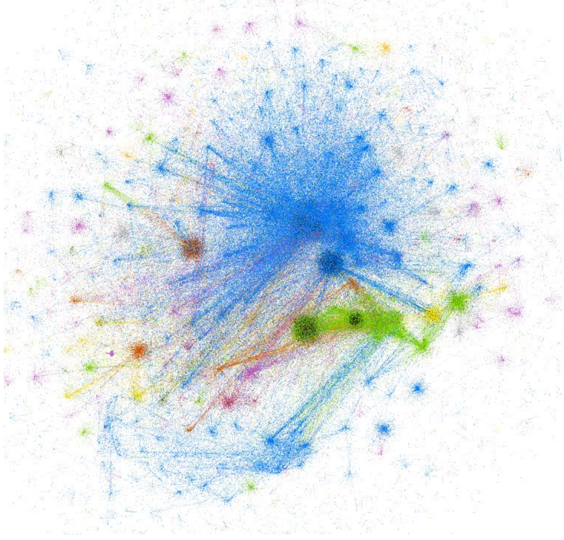
Chart 60 embodies the Twitter activity concerning these crypto-assets over one day (30 June 2023). It is interesting to note how the three predominant groups of tweets, relating to respectively Bitcoin, Solana, and Ethereum, are rather isolated from each other, forming major macro clusters. The fourth largest group of tweets, relating to Binance USD, features two sets of clusters: one comprising clusters that are rather 'isolated', and another one with clusters that are closely connected with the network. A similar pattern seems to be followed by the rest of the crypto-assets: each of these groups is divided between clusters that are rather isolated and clusters that are much more integrated with either the Bitcoin or the Ethereum sub-network. Such a network graph can be insightful for understanding to what extent a set of crypto-assets share a 'common audience' on social media and to what extent this audience is 'diffused', with users acting

47 See IOSCO (2023), [Policy Recommendations for Crypto and Digital Asset Markets](), November.

48 See Chow-White et al. (2021), ['Social Construction of Blockchain on Social Media: Framing Public Discourses on Twitter'](), JoCTEC.

independently, or 'concentrated', with few users determining the activity of the network.

Chart 60
Twitter activity for the top crypto-assets
'Clusters' of users that define sub-networks



Note: Twitter activity concerning the aforementioned crypto-assets over one day (30 June 2023). Nodes represent the Twitter users and edges represents the relations between them, that is to say, their retweets. The edges' colour are determined by the predominant topic of the retweet they represent (with this topic being one of the ten crypto-assets).
Source: Stockpulse, ESMA.

Artificial intelligence

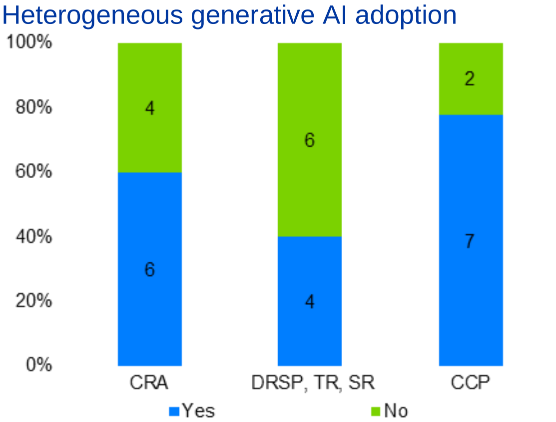
The use of tools based on large language models and other **generative AI** (GenAI) technologies in financial markets rose in 2023, as general-purpose and tailored tools made their way into a wide range of financial services operations. According to recent estimates, finance is among the industries with the highest adoption of GenAI and potential economic value[49].

According to a survey conducted by ESMA, a majority of CRAs and market infrastructures (namely central counterparties, trade and securitisation repositories, and data reporting service providers) are either already using GenAI tools in their business or plan to start using them in the near future (Chart 61). In most cases the deployment of these tools is still at an early or planning phase. Most companies rely on off-the-shelf solutions offered by IT infrastructure providers, to enhance analysts' productivity in activities such as information sourcing, coding, summarisation, and email and report writing. A few entities are exploring the use of GenAI for more specific business needs, such as to enhance client interactions and for synthetic data generation.

Regarding the primary motivations driving the adoption of GenAI, efficiency and speed are considered the main benefits, with a greater interest in these aspects than in accuracy and reliability (95 % of respondents indicated the former as potentially or highly relevant advantages vs. 62 % for the latter).

When asked about the risks from broader use of GenAI, 95 % of the respondents mentioned accuracy, reliability or robustness, data privacy and operational risk (e.g. due to cyber risks, dependence on third-party providers). These risks appear contained in light of gradual AI adoption, and human oversight. The potential impact on transparency and the quality of consumer interactions is a concern, especially if GenAI is deployed in client-facing tools, such as virtual assistants and robo-advisors. The concentration of AI models within only a few providers may also bring forth operational and dependency risks within the financial industry.

Chart 61
Use of GenAI by market infrastructures and CRAs
Heterogeneous generative AI adoption



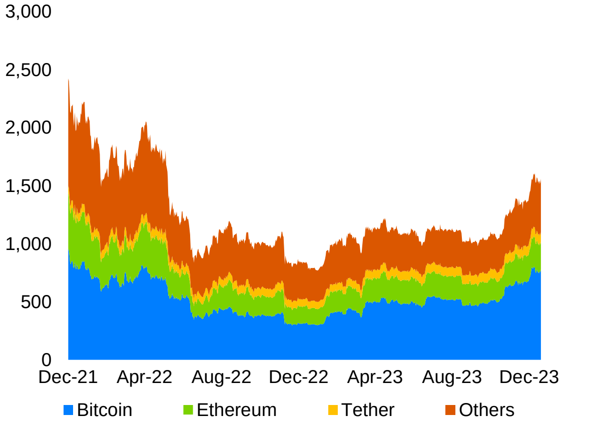
Note: The chart shows the answers to the question "Is your entity using generative AI tools or planning to do so in the near future?". Survey conducted in November 2023 among EU entities. CRA = credit rating agencies, DRSP = data reporting service providers, TR = trade repositories, SR = securitisation repositories, CCP = central counterparties.
Sources: ESMA

As AI-based tools become more integrated into financial markets, closely monitoring the related implications remains essential to ensure that productivity gains and the other benefits of these technologies are passed on to investors (e.g. via reduced costs and broader financial inclusion) within a safe and trustworthy financial ecosystem.

49 See McKinsey & Company (2023), "The state of AI in 2023: Generative AI's breakout year" and "The economic potential of generative AI: The next productivity frontier".

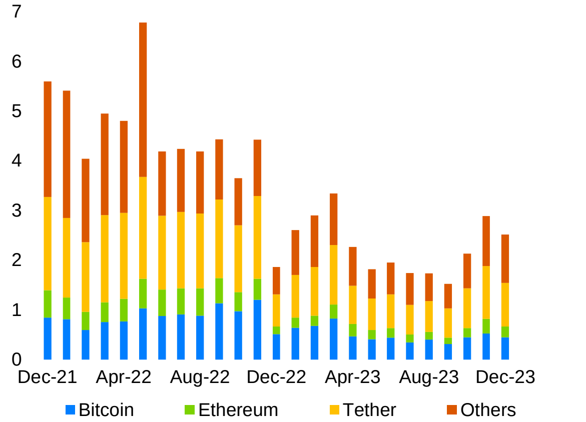
Key indicators

Chart 62
Crypto-asset market capitalisation
Crypto market up 100 % in 2023



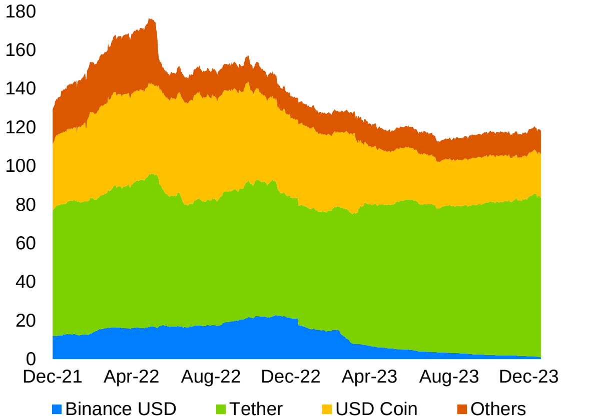
Note: Market capitalisation of Bitcoin, Ethereum, Tether and other crypto-assets, in EUR bn.
Sources: CoinMarketCap, ESMA.

Chart 63
Crypto-asset trading volume
No meaningful recovery in trading volumes



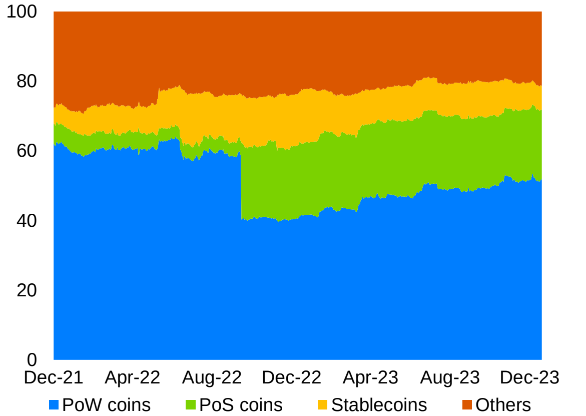
Note: Trading volumes of Bitcoin, Ethereum, Tether and other crypto-assets, in EUR tn.
Sources: CoinMarketCap, ESMA.

Chart 64
Stablecoin market capitalisation
Tether's dominance increases further



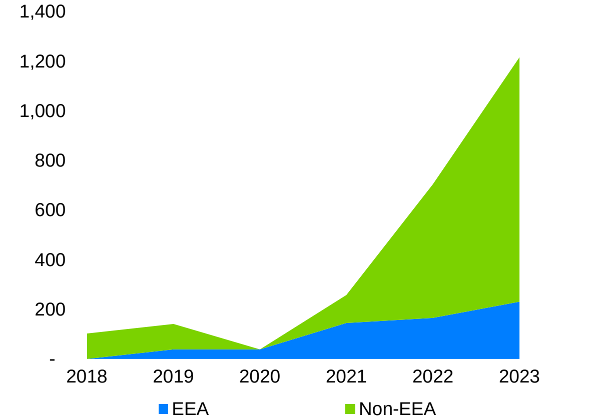
Note: Market capitalisation of Binance USD, Tether, USD Coin and other stablecoins, in EUR bn.
Sources: CoinMarketCap, ESMA.

Chart 65
Crypto-asset consensus mechanisms
Proof-of-work increase driven by Bitcoin



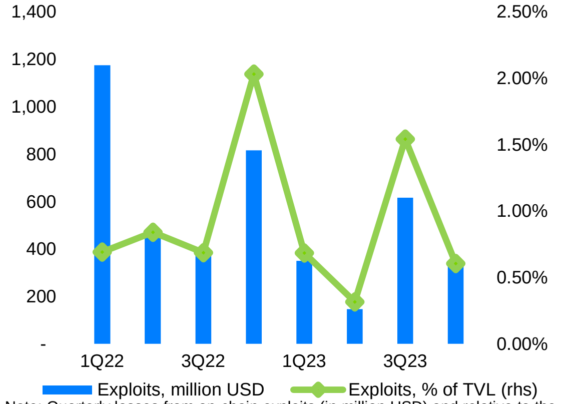
Note: Market capitalisation of crypto-assets by consensus mechanism, as % of the total. PoW=Proof-of-Work, PoS=Proof-of-Stake. Stablecoins only include Binance USD, Tether and USD Coin.
Sources: CoinMarketCap, ESMA.

Chart 66
Tokenised bonds
Rising outstanding notional but still marginal



Note: Oustanding nominal amounts of publicly traded DLT bonds split by issuer domicile, in million USD.
Sources: Refinitiv, ESMA.

Chart 67
DeFi exploits
Massive losses from exploits



Note: Quarterly losses from on-chain exploits (in million USD) and relative to the size of the overall DeFi ecosystem (% of TVL). Figures are notional at the time of the exploit.
Sources: Rekt, DeFiLlama, ESMA.

Annexes

TRV Statistical Annex

In addition to the statistics presented in the risk monitoring and risk analysis sections, we provide extensive and up-to-date charts and tables with key data on the markets under ESMA's remit in the TRV Statistical Annex, which is published jointly with the TRV and can be accessed on ESMA's website (https://www.esma.europa.eu/esmas-activities/risk-analysis/risk-monitoring).

List of abbreviations

1H(Q)23	first half (quarter) of 2023
1Y-MA	1-year moving average
2H(Q)22	second half (quarter) of 2023
ABS	asset-backed securities
AI	artificial intelligence
AIF	alternative Investment Fund
AuM	assets under management
BTC	bitcoin
BF	Bond fund
bp	basis point
CBI	Central Bank of Ireland
CCP	central counterparty
CDO	collateralised debt obligation
CDS	credit default swap
CFD	contract for differences
CISS	composite indicator of systemic stress
CLO	collateralised loan obligation
CNAV	constant net asset value
CMBS	commercial mortgage-backed security
CRA	credit rating agency
CRE	commercial real estate
CSD	central securities depository
DeFi	decentralised finance
DLT	distributed ledger technology
EA	euro area
ECB	European Central Bank
EEA	European Economic Area
ESG	environmental, social and governance
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ETD	exchange-traded derivative
ETF	Exchange-traded fund
ETH	Ether
ETP	exchange-traded product
EU	European Union
GDP	gross domestic product
GFC	Global Financial Crisis
HY	high yield
IG	investment grade
IMF	International Monetary Fund
IPO	initial public offering
LDI	liability-driven investment
LVNAV	Low volatility net asset value
MCM	market correction mechanism
ML	machine learning
MMF	money market fund
NAV	net asset value
NCA	national competent authority
NFC	non-financial corporation
OTC	over the counter
PE	price-to-earnings
pp	percentage point

RE	real estate
rhs	right hand side axis
RRE	residential real estate
SEC	Securities and Exchange Commission
SFDR	sustainable finance disclosure regulation
SMEs	small and medium-sized enterprises
UCITS	undertakings for collective investment in transferable securities
VNAV	variable net asset value
WAL	weighted average life
WAM	weighted average maturity
YTD	year to date

Currencies and countries abbreviated in accordance with ISO standards.

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