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TRV Risk Monitor

ESMA Report on Trends, Risks and Vulnerabilities, No. 2, 2023

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 The reporting period for this Report is 1 July 2022 to 31 December 2022, unless otherwise indicated. Legal reference for this Report: Regulation (EU) No. 1095/2010 of the European Parliament and of the Council of 24 November 2010 establishing a European Supervisory Authority (European Securities and Markets Authority), amending Decision No 716/2009/EC and repealing Commission Decision 2009/77/EC, Article 32 'Assessment of market developments, including stress tests', '1. The Authority shall monitor and assess market developments in the area of its competence and, where necessary, inform the European Supervisory Authority (European Banking Authority), and the European Supervisory Authority (European Insurance and Occupational Pensions Authority), the European Systemic Risk Board, and the European Parliament, the Council and the Commission about the relevant micro-prudential trends, potential risks and vulnerabilities. The Authority shall include in its assessments an analysis of the markets in which financial market participants operate and an assessment of the impact of potential market developments on such financial market participants.' The information contained in this publication, including text, charts and data, exclusively serves analytical purposes. It does not provide forecasts or investment advice, nor does it prejudice, preclude or influence in any way past, existing or future regulatory or supervisory obligations by market participants.

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Executive summary

Risk summary and outlook: In 1H23, financial markets rebounded on lower energy prices and expectations of a slower pace of monetary tightening. Financial markets are adapting to the new economic environment of durably higher interest rates and inflation, and are highly reactive to adverse events. The collapse of several US regional banks revived concerns over the banking sector and triggered a short episode of volatility. Overall risks to ESMA's remit remain at high or very high levels. Going forward, markets are set to remain very sensitive, especially to potential deteriorations in economic fundamentals or risks in financial institutions, while keeping a close eye on private and public debt sustainability in the context of higher interest rates. Hence there is a high risk of corrections in a context of fragile market liquidity in the equity, bond and crypto markets. Volatility and inflation also increase short-term risks for consumers, especially losses from negative real returns.

Securities markets: Equity markets rose in 1H23, even though the market stress related to US banks led to increased volatility and bid-ask spreads in March and April. Uncertainty continued to prevail in fixed income markets driven by the stress in the banking sector and expectations of further rate hikes. This contributed to heightened volatility and low liquidity, with both corporate and sovereign bonds mostly flat in 1H23. Credit risk indicators showed mixed signals, with early signs of deterioration such as increasing corporate high-yield defaults and sovereign downgrades, but on the other hand limited movements on sovereign credit spreads. Short selling related to EU banks remained contained. The EU's new Market Correction Mechanism to curb excessive natural gas prices has been implemented, but, with falling prices, has not been triggered for now.

Asset management: The fund sector partly recovered after the historical decline experienced in 2022, primarily due to valuation effects. At EUR 18tn AuM it remains EUR 1.4tn below its end-2021 level. Performance has turned positive again for equity and bond funds. Flows in equity funds were muted while bond funds received inflows, which contrasts with the outflows in 2022. In particular, fixed income funds, which reduced their maturity and interest rate sensitivity during the monetary tightening, are now positioned to benefit from higher yields. Fund risks remain high due to prevailing credit, valuation, liquidity and interest rate risks, especially for funds combining several vulnerabilities such as in the real estate fund sector.

Consumers: Sentiment remained negative amid lingering uncertainty and weak expectations on long-term developments. The performance of retail investments remained subdued, reflecting sustained price pressures in the underlying asset markets. Though annual inflation in the EU has declined it remains a significant drag on real investment returns. High levels of consumer complaints persisted for contracts for differences (CFDs).

Infrastructures and services: The market stress experienced by banks in March resulted in an increase in circuit breaker events affecting financial shares and, renewed growth in equity trading volumes in 1Q23. CRAs issued over 14,000 new EEA ratings in 1H23. After the peak in 2H22, CCP margins relating to commodity products decreased in 1H23, in line with the drop in energy derivative prices.

Market-based finance: The ability of non-financial corporations to raise funds through capital markets slightly picked up in 1H23 from the lows observed in 2022. Equity dealmaking was mostly flat and issuance was mostly driven by secondary offerings. Corporate bond issuance peaked in 1Q23, with concentration in shorter term maturities mainly linked to monetary policy expectations.

Sustainable finance: The EU market for ESG products and sustainable investments has continued to grow at a robust pace despite a slowdown in ESG bond issuance in 1H23, and the demand for funds with a sustainable investment objective remained strong, while the wave of fund reclassifications from SFDR Article 9 to Article 8 had no clear impact on fund flows.

Crypto-assets and financial innovation: Crypto-asset valuations rebounded in 1H23 to EUR 1.2tn amid receding trading volumes but remained far below their historical peak of EUR 2.6tn. Persistently elevated cyber risks remain an important source of concern for the EU financial sector. Financial markets have started exploring potential implications of Artificial Intelligence after the launches of various Generative AI tools in 1H23. Their effect could be transformational, and authorities are working out benefits and risks to consumers and financial stability.

Risk dashboard

Overall ESMA remit

Risk categories

	Level	Outlook
Overall ESMA remit	○	→
Liquidity risks	○	→
Market risks	○	→
Credit risks	○	↗
Contagion risks	○	→
Operational risks	○	→
Environmental risks	○	↗

Risk drivers

	Outlook
– Geopolitical risks	→
– Macroeconomic environment	→
– Inflation and interest rate environment	→
– Public and private indebtedness	↗
– Infrastructure disruptions	→
– Other event risks	↗

Securities markets

Risk level	Outlook
○	→

Risk drivers
- Ongoing uncertainty from the geopolitical situation, risks of market volatility and market shifts.
- Continued macrofinancial uncertainties relating to the tightening of financial conditions globally and persistent weakness in the macroeconomic environment.
- Reduced growth increasing already high indebtedness from the COVID-19 pandemic and higher debt refinancing costs weakening public and private balance sheets.
- Market nervousness translates into strong reaction to adverse events.

Asset management

Risk level	Outlook
○	→

Risk drivers
- Ongoing pressure on real portfolio returns from weak mid-term economic outlook and inflation pressures.
- Shocks affecting both asset liquidity and liquidity demands could challenge funds exposed to liquidity mismatches such as fixed income and real estate funds.
- Shift to the new interest rate environment, especially in sectors exposed to unrealised losses such as real estate funds.

Consumers

Risk level	Outlook
○	↗

Risk drivers
- Market volatility and high inflation increase short-term risks for consumers, especially losses from negative real returns.
- Aggressive marketing, especially of higher-risk structured products and crypto-assets.
- Lack of consumer proficiency in social-media-driven trading .
- Potential greenwashing and limited ESG investing literacy.
- Poor cost disclosure and transparency, and potential for conflict of interest also in relation to financial advice.

Infrastructures and services

Risk level	Outlook
○	→

Risk drivers
- Ongoing operational risk of cyberattacks, especially from Russia.
- High market volatility raises risks of trade disruptions and margin breaches.
- Ongoing significant operational risk to infrastructures generally, including exposure from increasing digitalisation and the use of cloud services in core production processes.

Note: Assessment of the main risks by risk categories and sources for markets under ESMA's remit since the last assessment, and outlook for the forthcoming quarter. Risk assessment based on the categorisation of the European Supervisory Authorities Joint Committee. 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. The ESMA risk assessment is based on quantitative indicators and analyst judgements.

Risk analysis

ESMA publishes in-depth analyses across a wide range of risk issues. The list below highlights key ESMA Risk Analysis publications in the last year 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

- EU natural gas derivatives markets: risks and trends
- A framework to assess operational resilience
- Parsing prospectuses: A text-mining approach

Asset management

- Stress testing MMFs in the EU – First evidence from fund reporting
- Fund performance during market stress – The Corona experience

Consumers

- Key Retail Risk Indicators for the EU single market
- The drivers of the costs and performance of ESG funds

Sustainable finance

- EU Ecolabel: Calibrating green criteria for retail funds
- Text mining ESG disclosures in rating agency press releases

Financial innovation

- Artificial intelligence in EU securities markets
- Crypto-assets and their risks for financial stability

ESMA Market Reports

- EU credit ratings market 2023
- EU Money Market Fund market 2023
- Costs and performance of EU retail investment products 2023
- EU alternative investment funds 2022
- EU securities markets 2021
- EU derivatives markets 2021

Risk monitoring

Market environment

The macro-financial environment has improved in the first half of 2023 (1H23) despite significant ongoing uncertainties. At global level, the IMF confirmed its expectation of a pronounced slowdown in real gross domestic product (GDP) growth, from 3.5% in 2022 to 3.0% in 2023. In the EU, the economy entered a technical recession in 1Q23 while the European Commission (EC) projected growth of 1% in 2023 and 1.7% in 2024[1]. However, this forecast has been already revised twice since the autumn 2022 forecast (+0.5 percentage points (pp) in total) against the backdrop of lower energy prices, strong labour markets and generally improved confidence. On the other hand, the downside risks have increased as core inflation (excluding energy) remain elevated and financial markets stay nervous, with very strong reactivity to adverse events in the financial sector and to changes in macro-financial fundamentals.

Inflation has continued to decline from the peak of October 2022 (11.5% year-on-year in the EU), falling to 7.1% in May (6.1% for the EA) with EC forecasts now set at 6.7% for 2023 in the EU (5.8%) and 3.1% for 2024 (2.8%). Inflation rates are expected to converge between EU Member States after the dispersion observed in 2022. Such inflation has a direct effect on financial markets, by reducing the real returns of non-indexed securities and more generally by affecting asset allocation. Moreover, inflation dynamics set the pace of the interest hiking cycle.

Monetary policy has tightened further to tame inflation pressures. In the United States, the Federal Reserve System raised its benchmark rate by 100 basis points (bps) in 2023, resulting in a target rate of 5.375%, a cumulative tightening of 525bps since February 2020, an event unseen in 40 years. In the euro area, the European Central Bank (ECB) further increased its policy rates by 175bps in 2023. The increase of the rate of the main refinancing operations to 4.25% is part of a broader normalisation of monetary policy, which includes a reduction of the stock of securities purchased in the asset purchase programme by EUR 15bn per month on average in 1H23. While the changes in the interest rates are transmitted to the real economy with a delay, their impact on stock and bond markets was anticipated and has not led to a decline like in 2022 (Chart 5). Bond prices are directly impacted by interest rates changes, as the sensitivity of bonds to interest rate increases with their duration. In comparison, the transmission of interest rate changes to stock prices depends on how the profitability of each company is affected, with more impact on companies that are more reliant on external funding.

Global financial conditions reflect the transmission of the monetary conditions into higher borrowing costs, while credit flows decreased. In 1H23, corporate bond yields remained stable at their highest level in 10 years. Over the last year, investment grade (IG) corporate bonds were issued at 3.5% on average. Credit spreads spiked in March after the collapse of Silicon Valley Bank (SVB) before returning to the average levels observed in 2022. The increase in financing costs and credit spreads is particularly pronounced for the high yield segment and highly indebted companies. High yield and highly indebted companies are the most vulnerable to any spike in risk aversion.

The March turmoil in the US banking sector highlighted the **market nervousness** characterised by very strong reactivity to adverse events (Textbox 1). The US developments also revived uncertainty around risks in the banking sector in Europe, leading to the takeover of Credit Suisse by UBS and a sell-off in banking stocks. While the increase in interest rates is generally favourable to bank's net interest income, markets are concerned by potential unrealised losses from rate-sensitive assets such as loans, fixed-income securities, real estate or private finance. In a context of market nervousness, bad news in the banking sector or in other parts of the financial system could spread rapidly and lead to general surge in risk aversion.

Commodity prices play an important role in the current market environment as they were initially one of the main sources of inflation that led to the tightening of monetary policy. They remained elevated from a longer-term perspective, but generally retreated from their high 2022 levels. Natural gas prices fell by more than 50% compared to October 2022, to below their pre-

[1] IMF (2023), World Economic Outlook – Near term resilience, persistent challenges; European Commission (2023), European Economic Forecast – Spring 2023.

war level, due to lower gas consumption and the diversification of supply sources (Chart 3). Oil prices have fallen to around USD 80 per barrel from the peak reached in mid-2022 (USD 120), despite the OPEC+ announcement in April that they would reduce supply. In contrast, metal commodity prices remained relatively stable while food prices are still at 20% above pre-war levels.

The current uncertainty is exacerbated by the high level of **geopolitical risk.** While the direct impact remains limited, there is still no sign of an end to the conflict. Moreover, tensions between the US and China remain high. Further economic fragmentation would have a significant impact for the EU and financial markets.

Government **debt levels** have continued to decline in 2022. Despite an increase in primary deficits, the economic recovery and the rise in inflation have helped reduce the debt amount in real terms. EU gross government debt–GDP ratio dropped to 85 % in 2022 (93% in the EA), from the historically high level of 92% recorded in 2020. Still, concerns remain regarding the increasing level of sovereign yields, at 2.32% in the EA on average in April, a stable yet high level in historical terms. In particular, several Member States had their ratings downgraded during the reporting period. On the other hand, euro area sovereign bond spreads over German bunds have remained broadly stable in most Member States while credit default spreads do not show visible signs of debt sustainability concerns. In the US, the Senate passed bipartisan legislation to lift the government debt ceiling until 2025, avoiding a first-ever default with potential global spillovers. However, one CRA expressed its concerns over the repetition of late agreements on the debt ceiling and downgraded the US debt from AAA to AA+ in August, especially as the government debt burden is expected to increase in the future. The US has now lost its AAA rating with 2 of the 'big three' CRAs.

Against the background of an improved macrofinancial environment, European securities markets are coming under reduced **systemic stress**. This is reflected in ESMA's version of the ECB composite indicator of systemic stress (CISS) (Chart 6).

Textbox 1

US banks collapse revived concerns over the banking sector

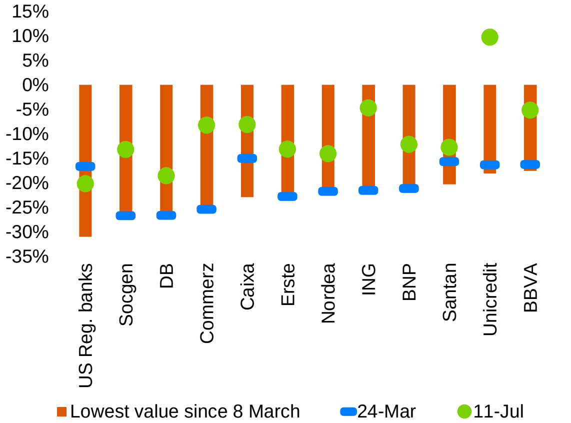
The collapse of three US regional banks that started on 10 March triggered a sell-off in the banking sector, including European banks and Credit Suisse in particular. It was caused by a combination of unrealised losses on banks bond portfolios and very large withdrawals from a concentrated depositor base. While unrealised losses were the direct effects of higher policy rates, the deposit run was particularly fast with up to one-fifth of total deposits being withdrawn in a day and social media potentially playing a prominent role.

US authorities reacted immediately by putting the troubled banks into receivership and announcing a systemic risk exception enabling them to guarantee uninsured deposits. Moreover, the Federal Reserve set up the Bank Term Funding Program as a temporary emergency funding facility. Eventually this package limited the contagion to other banks and restored confidence.

Chart 1

Bank stocks

Partial recovery except for some banks



Note: Change in equity prices of banks compared to 8 March 2023 levels, in %.
Sources: Refinitiv EIKON, ESMA.

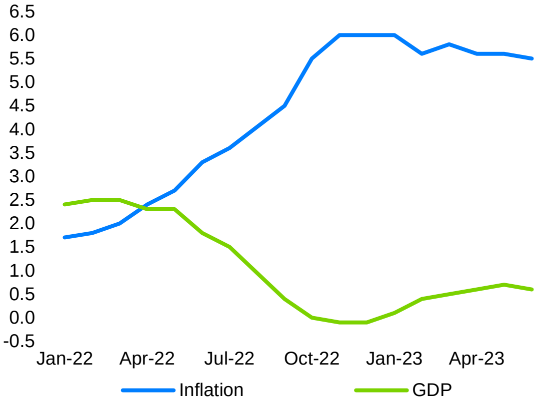
European banks are less exposed to the risks that triggered the stress for the US banks, but the initial sell-off raises certain concerns about the European banking sector. Bank stocks prices dropped by more than 10% on 15 March and more than 24% for Credit Suisse before its authorities-led acquisition by UBS on 19 March, with a discount of more than 50% to its market value. Despite the March turmoil most EU banks recovered as EU bank valuations increased by 16% in 1H23, although lower than early March on average.

Finally, current valuations show that markets are now pricing banks individually, depending on their individual characteristics (Chart 1). This is especially the case of the other US regional banks, which are at their lowest value since 8 March. In contrast, most EU banks hit their lowest valuation simultaneously on 24 March before rebounding.

While the systemic stress indicator decreased below the levels seen during 2H22, there was a surge in March during the banking-related stress particularly reflecting the high volatility in equity markets. This illustrates the nervousness of markets in general and their reactivity to event risks in particular.

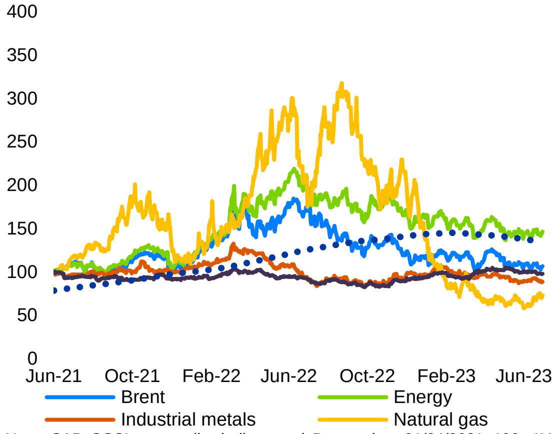
Key indicators

Chart 2
GDP and inflation forecasts for 2023
Growth and inflation better than anticipated



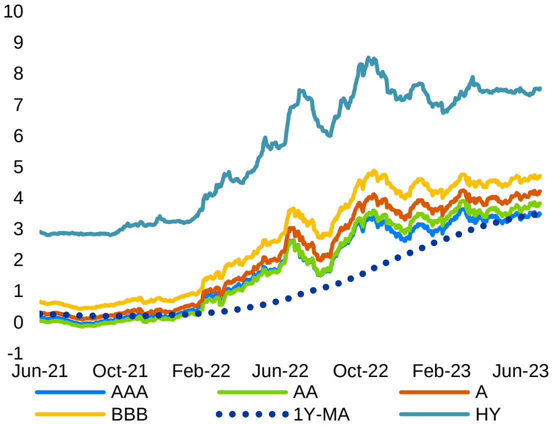
Note: Median GDP growth and inflation forecasts for the euro area for 2023, by vintage month, in %.
Sources: Refinitiv EIKON, ESMA.

Chart 3
Commodity prices
Natural gas prices below pre-crisis level



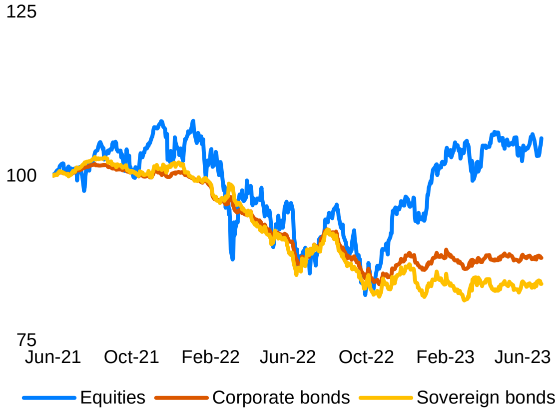
Note: S&P GSCI commodity indices and Brent price. 01/04/2021=100. 1Y-MA=one-year moving average computed using S&P GSCI.
Sources: Refinitiv Datastream, ESMA.

Chart 4
Financial conditions
Sharp tightening of financial conditions



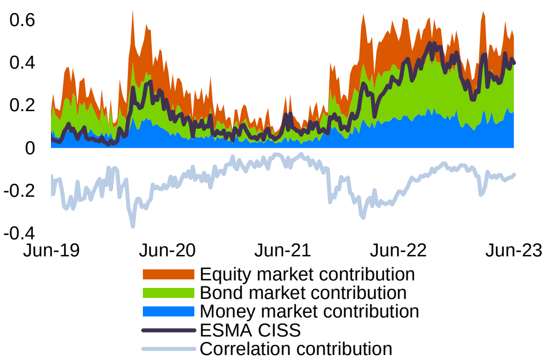
Note: : ICE BofAML EA corporate bond redemption yields by rating, in %. 1Y-MA=one-year moving average of all IG indices.
Sources: Refinitiv Datastream, ESMA.

Chart 5
Market performance
Equity prices rebounded, not bonds



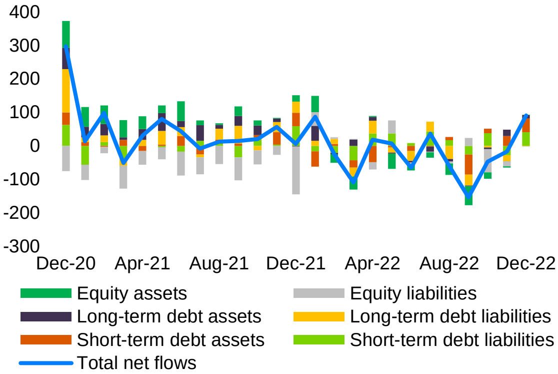
Note: Return indices on EA equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities). 01/04/2021=100.
Sources: Refinitiv Datastream, ESMA.

Chart 6
ESMA systemic stress indicator
Elevated 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 7
Portfolio investment flows from and to the EA
Net inflows in EA in December



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.

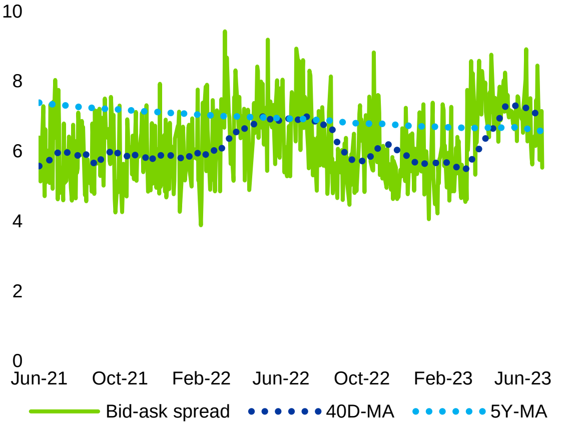
Securities markets

Equity markets up, despite banking sector stress

European equity markets rose by 19% in 1H23, in line with the global increase of equity markets (Chart 14). This is despite the **market nervousness** linked to the March turmoil in the US banking sector, where EU equity market valuations saw peak-to-trough declines of -6.5% overall and by -17.3% for the EU banking sector (Chart 16). The overall growth trend is linked to increased confidence led by revised growth expectations and declining energy concerns, along with reduced volatility since the March episode. Most sectoral European valuations increased compared to their end 2022 levels. This is especially true for technology (+26% in 1H23), consumer cyclicals (+24%), industrials and utilities (+18% and +12% respectively).

Despite the March turmoil, European banking sector valuations also increased by 16% in 1H23. In terms of valuation levels, EU **price-to-earnings (PE) ratios** rebounded in 1H23, staying slightly higher than their 10-year average since January (Chart A.10), further reflecting renewed optimistic market sentiment.

Chart 8
Equity bid-ask spreads in Europe
Sustained increase in bid-ask spreads in 1H23



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.

During the second week of March, the **collapse of three US regional banks**, the distressed sale of Credit Suisse (Textbox 1) and the CDS evolution of Deutsche Bank triggered a short-lived surge in volatility on equity markets. This volatility increase was stronger on European markets, with a weekly jump of 9pp, compared to 4pp in the US (Chart 15).

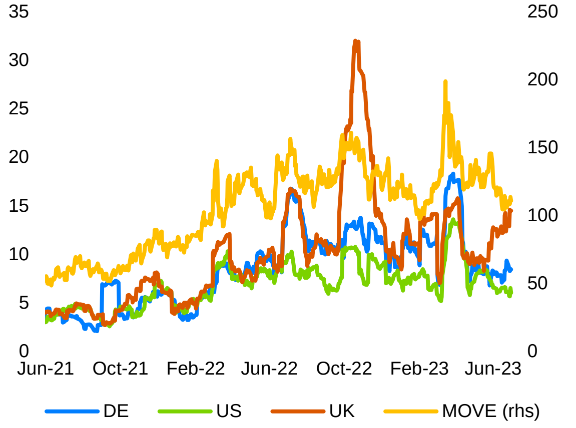
Nevertheless, the overall market **volatility** levels remained below the high levels observed in March 2022, amid rising energy costs and supply disruptions. The VSTOXX index, which reached 50 in March 2022, peaked at 32 on 15 March 2023. Historical volatility of the banking sector was more elevated, but slightly lower compared to March 2022 volatility (peak at 60% vs 66%). Despite the short-lived nature of volatility increases and valuation declines, the market impact of these concerns on liquidity appears sustained, since bid-ask spreads increased significantly, and remained above their 5-year average in 71% of the trading days between March and June 2023 (Chart 8), and ESMA's equity illiquidity indicator increased during the same period (Chart A.14).

Volatile fixed income markets

With the exception of Additional Tier 1 (AT1) bonds, which were directly affected by the bank related market stress, **fixed income markets** were mostly flat in 1H23, though very volatile, characterised by heightened uncertainty stemming from the stress in the EU and US banking sector and investor expectations over further monetary policy tightening.

As of end-June, European **sovereign bond yields** stood slightly below end-2022 levels and were subject to elevated volatility (Chart 17). The beginning of the year showed increased pressure for sovereign bonds mostly linked to uncertain macroeconomic conditions. The market tensions relating to the banking crisis in March led to a temporary decline in yields, with investors moving from equity markets to sovereign bonds (considered as 'safe haven' assets). This coincided with high peaks in the volatility of sovereign bond futures reaching historically high levels (Chart 9). In the EA, the largest year-to-date declines were observed for IT (-64bps to 4%), ES (-27bps to 3.4%), and FR (-18bps to 2.9%). US yields showed similar developments standing at 3.8%, 3bps below end-2022 levels.

Chart 9
Volatility of sovereign bond futures
Volatility peaks in March



Note: Annualised 20D volatility of sovereign bond futures in % and MOVE index which measures US Treasury bond volatility derived from options.
Sources: Refinitiv Datastream, ESMA

Corporate bond markets were also sensitive to the banking turmoil. In contrast to sovereign bonds, both investment grade (IG) and high yield (HY) bond yields increased in mid-March against the background of deteriorated market sentiment linked to the banking sector events before gradually recovering. The first half of 2023 also saw a bifurcation between HY and IG, with overall changes in yields of -14bps and 19bps respectively. After a broad decline since November 2022, credit spreads also peaked in March and then progressively receded to end-2022 levels.

During the banking turmoil, AT1 bonds came under pressure linked to the purchase of Credit Suisse by UBS[2]. Following this event, the price of AT1 bonds issued by European banks experienced a peak-to-trough fall of 18% in March and continued to trade at lower levels since then (recovered by 9% since 28 March and -8% below end-2022 levels). The stress around these types of instruments raises valuation uncertainty concerns and risks around contingent convertible bonds.

Although ESMA indicators slightly improved as of end-June, they continued to point towards deteriorated **liquidity** in fixed income markets, particularly sovereign whose bid-ask yields remained 58% above the 5-year moving average. Corporate bond liquidity instead improved with respect to end-2022 (bid-ask spread declined by-15%), but levels continued to be elevated if compared to end-2021 (+50%).

[2] See Explainer: What are AT1 bonds and why are Credit Suisse's wiped out?, Reuters, March 2023.

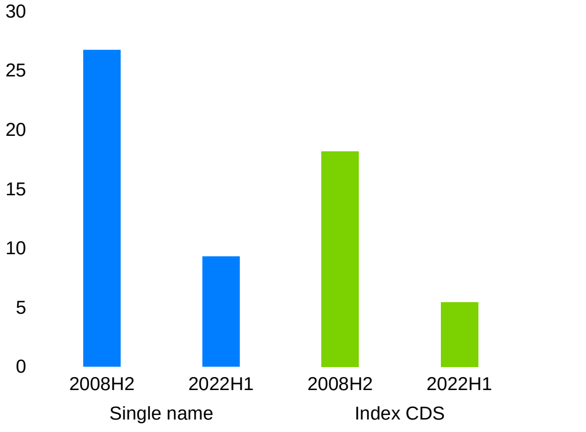
Textbox 2
CDS liquidity questioned during banking turmoil

During the period of stress in the US and European banking sectors in March and April 2023, spreads on European bank CDS increased markedly. While concerns around individual institutions explain a large part of the increase in spreads, low liquidity for single name CDS might have also played a role. This box reviews the main characteristics of the CDS market.

After the Global Financial Crisis, CDS markets underwent substantial regulatory reforms. The main index CDS are subject to the clearing obligation (by CCPs) and the trading obligation. On the other hand, single name CDS, which are less liquid, have not been subject to clearing or trading obligations, while the CCPs clearing index CDS offer clearing services for some single-name CDS (especially for index constituents).

Following those reforms, the size of global CDS markets has shrunk markedly, also reflecting the role of CCPs, standardisation and compression. Gross notionals for single name CDS amounted to around USD 9tn in 2022 compared with close to USD 27tn in 2008. Similarly, index CDS notional declined from USD 18tn in 2008 to around USD 5tn (Chart 10). Regulatory data show that trading volumes are low for single name CDS, even on the most active reference entities (such as banks): average daily volumes are less than EUR 30Mn with very few trades per day and a small number of counterparties. Almost all trading occurs OTC rather than on exchange.

Chart 10
Global CDS markets
Sharp decline in size since 2008

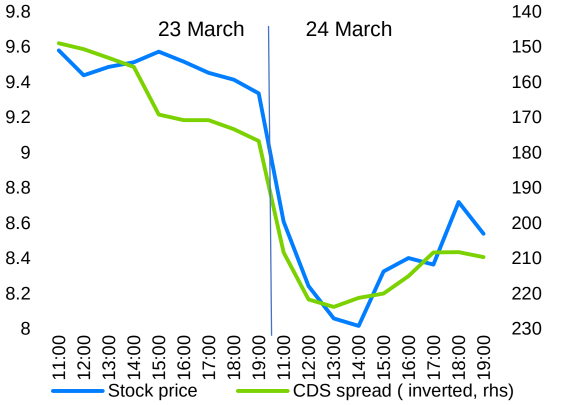


Note: Gross notional amounts on CDS derivatives in USD tn.
Sources: BIS, ESMA.

Risks relating to the lack of liquidity in single name CDSs

In this context, individual trades on single name CDS can have a large impact on prices. During the period of banking sector stress, a high correlation between change in CDS spreads and decline in stock prices had been seen for some European banks (Chart 11). Beyond concerns about potential nefarious intent relating to CDS trades, the lack of liquidity might result in higher CDS spreads which could then spill over to related assets tied to the same reference entity (bonds, equities and derivatives).

Chart 11
CDS and equity price
High correlation between CDS and stock prices



Note: Deutsche Bank stock price, in EUR, and 5Y CDS spread, in bps.
Sources: Refinitiv EIKON, ESMA.

Credit quality: early signs of a deterioration

In the first half of 2023, indicators issued by credit rating agencies (CRAs) for European debt began to show signs of credit quality deterioration, particularly for sovereigns.

For **corporates**, ratings drift, a ratings-based measure of the net change in credit quality, remained slightly positive for financial ratings, but was negative at points for both insurers and non-financials (Chart A.43). Downgrades for non-financials were slightly less prevalent than upgrades, though weekly patterns were volatile (Chart A.44). Also, among EEA corporate non-financial, negative outlooks remained more prevalent than positive outlooks across rating categories.

For **sovereigns,** drift turned negative toward the end of the reporting period, driven by downgrades related to the states of the France, Hungary, Czech Republic and Poland. Similarly, public and regional ratings drift turned negative, with the decline greatest among public ratings.

For **structured finance**, ratings drift fell, but remained materially positive. This was driven largely by upgrades in RMBS, where drift rose, and to a lesser extent in ABS, where it was flat but positive. In contrast drift fell to just above positive for CDOs (predominantly CLOs) and was negative for CMBS. However, despite the positive drift, there are also early signs of potential deterioration here. Namely, in the US market are recent signs of downgrades accumulating in high yield corporate loans, which could feed into US CLO credit quality in due course.[3]

Fallen angels, investment grade ratings downgraded to high-yield, grew strongly relative to the previous half year but remained low in absolute terms. In 1H23, 0.1% of corporate ratings (up from 0.03% in 2H22) and 0.13% of structured finance investment grade ratings (up from 0.7% in 2H22) were fallen angels. There were no fallen angels in sovereigns. Levels are still low by historical standards (averages since 2016 are 0.2% for corporates and 0.15% for structured finance) and thus, risks that fallen angels could drive fire-sales by investors who face limits to investing in high-yield debt remain limited. Rising stars, upgrades from high-yield to investment-grade, continued at a higher rate (1.7% for corporates, 1.9% for structured finance and none in sovereigns).

There were also some signs of credit quality deterioration in the proportion of corporate high-yield ratings experiencing **defaults**. This rose to 0.76% in the first half of 2023, from 0.53% in the second half of 2022 and 0.19% in the first half of 2022.[4] Defaults for ratings of EEA issuers continued to be absent in investment-grade corporate ratings, in sovereigns and structured finance ratings.

In relation to the US regional bank crisis, rating actions for **European banks** remained limited, particularly compared with the rapid movements in single-name credit default spreads for some banks, as discussed above. This divergence between single-name CDS and credit ratings clarifies the different nature of these credit risk metrics. Single-name CDS spreads are much more volatile as credit-risk measures, as they are market-indicators that can change rapidly, particularly in times of illiquidity.

Looking ahead, short-term credit risks remain elevated, given the potential for further interest-rate rises, inflation costs continuing to feed through, and more issuers need to refinance. This could drive further downgrades, and in the

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3 See US junk loan market hit with flurry of credit rating downgrades, FT (July 2023).

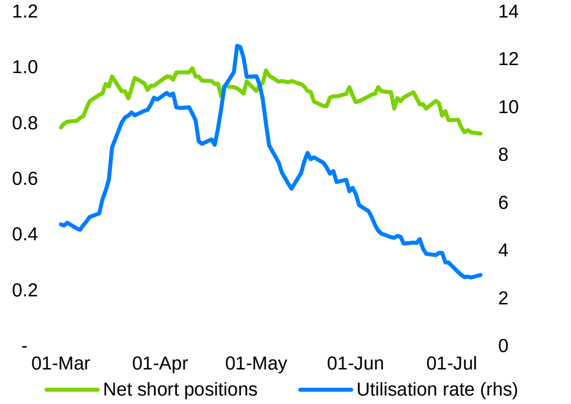
4 This aligns with recent assessments by the CRAs. S&P, for example, expects European high-yield corporate default rates to rise markedly in the coming 12 months. See S&P Global (2023) Default, Transition, and Recovery: The European Speculative-Grade Corporate Default Rate Could Rise To 3.6% By March 2024 As Stressors Mount | S&P Global Ratings.

case of corporates, continue the upward trend in defaults. This, in turn, could fuel deterioration in the credit quality of related structured finance products.

Short positions on EU banks

Activity in European securities lending markets increased in 1H23, with moderate growth in volumes and utilisation rates of equity lending linked to the dividend season (Charts A.47; A.48).

Chart 12
Net short positions on EEA banks and utilisation rate
Net short positions on banks steady since March



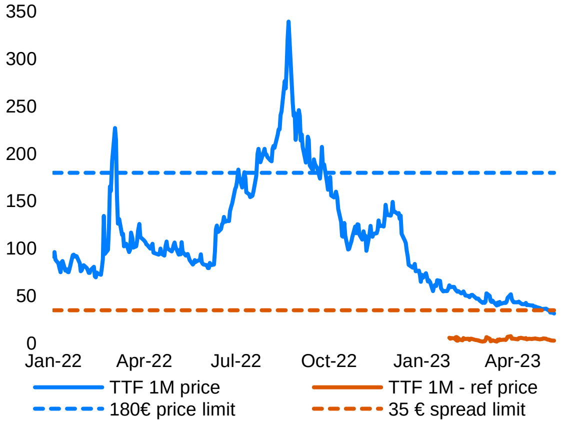
Note: Utilisation rate for a sample of EEA bank shares in % of total available for lending (blue, rhs) and net short positions on EEA bank shares reported by NCAs falling under SSM supervision as % of their total market value (green). EEA banks market value as of 01-Mar-23 used as reference.
Sources: NCAs, Refinitiv Eikon, FIS Astec, Quandl, ESMA.

Shares of European banks displayed an earlier-than-usual uptick in utilisation rate (Chart 12), which showed a rapid rise from mid-March 2023 onwards, relating to turmoil in the US banking sector. However, contrary to US regional banks, short selling positions reported under the Short Selling Regulation for EEA banks remain contained[5]. Following peak levels reached due to the dividend season, the utilisation rate of EU banks quickly decreased.

Commodity derivatives: sharp decline in volatility

As concerns around the supply of natural gas have abated for now, prices and volatility have declined (Chart 13), with the latter being below its long-term average. In particular, futures prices on natural gas have been well below the activation thresholds for the market correction mechanism (MCM)[6]. The MCM is activated either (i) if the front-month future price on the Dutch TTF is above EUR 180/MWh 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[7].

Chart 13
Natural gas future prices
Large drop in 2023



Note: TTF front month price from ICE and spread with ACER reference price from 1 February 2023, with the limits specified in the MCM Regulation.
Sources: ACER, ICE Endex, ESMA

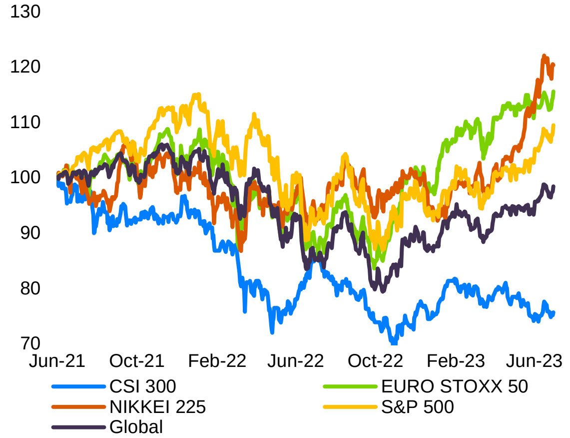
5 Beginning in March 2023, NCA and ESMA reinstated the daily collection of aggregated net short positions for EEA banks to be able to take informed decisions if needed.

6 For further information on the MCM, see ESMA (2023a), 'Effects Assessment of the impact of the market correction mechanism on financial markets', March.

7 See ACER MCM page for further information on the reference price.

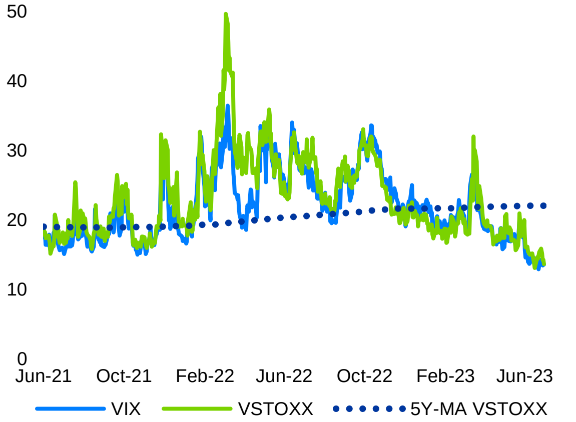
Key indicators

Chart 14
Regional equity market performance
Strongest rebound in EU



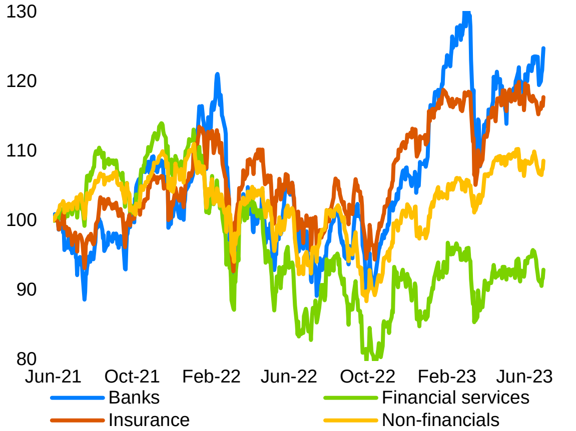
Note: Regional equity return indices. 01/06/2021=100.
Sources: Refinitiv Datastream, ESMA.

Chart 15
Equity market volatility indices
Volatility surge mid-March, subsided in 2Q23



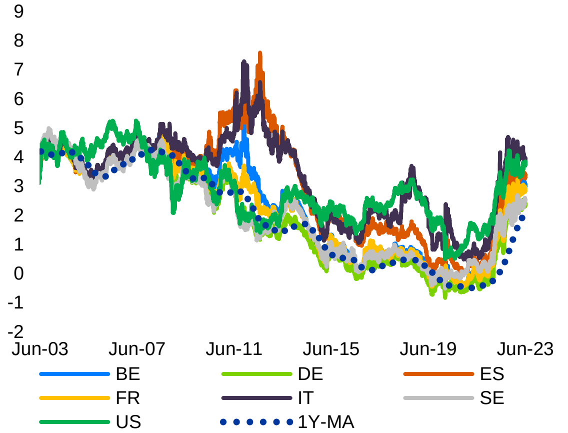
Note: Implied volatility of EURO STOXX 50 (VSTOXX) and S&P 500 (VIX), in %.
Sources: Refinitiv Datastream, ESMA.

Chart 16
Equity price performance in Europe by sector
Drop in bank prices in March from elevated levels



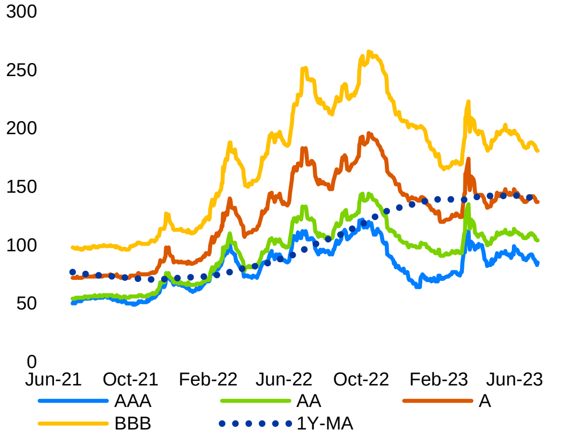
Note: STOXX Europe 600 sectoral return indices. 01/06/2021=100.
Sources: Refinitiv Datastream, ESMA.

Chart 17
EU sovereign bond yields
Stable at elevated levels



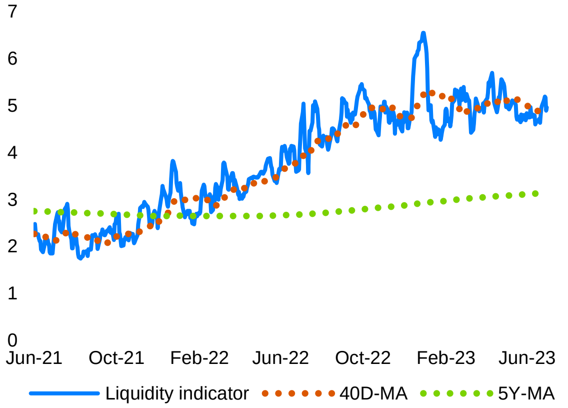
Note: Yields on 10Y sovereign bonds, selected countries, in %. 1Y-MA=one-year moving average of EA 10Y bond indices computed by Datastream.
Sources: Refinitiv Datastream, ESMA.

Chart 18
Corporate bond spreads
Jump in March, then gradual decline



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

Chart 19
Sovereign bond liquidity
High bid-ask spreads



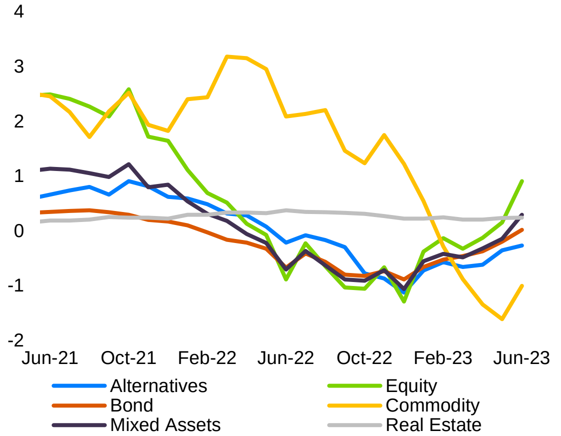
Note: Liquidity measured as median across countries of the bid-ask yields difference for 10Y sovereign bonds, in bps. Lower figures mean more liquidity and vice-versa. 22 EEA30 countries are included.
Sources: Refinitiv EIKON, ESMA.

Asset management

Slow recovery in 1H23

After the historically large decline of **EA fund assets** in 2022 (-EUR 2tn or -10%), the fund sector slightly rebounded in 1H23, up to EUR 18tn (+3%) owing to valuation effects [8]. In terms of size, it remains EUR 1.4tn below the End-21 level (Chart 23). Fund performance in 1H23 reflects this improvement, with most fund categories reporting better returns than in 2022. Equity funds exhibited a 12-month average monthly performance of 0.9% in 1H23, up from -1.3% in December, and bond and mixed funds reported respectively 0% and 0.3% (-0.9% and -1.1% in 2022). In contrast, commodity funds which had been outperforming the rest of the industry for the last 2 years reported negative figures for the first time since 2020, down to -1.0% (+1.2% in 2022) against the background of declining commodity prices.

Chart 20
EU fund performance
Improves for most funds; commodity funds plummet



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

There was no clear trend in terms of equity fund **flows** in 1H23, thus reflecting some uncertainty among investors. Equity fund flows were muted in 1H23 which contrasted, on the one hand, with the significant inflows into ETFs (+5.1% NAV) and, on the other hand, with the outflows experience by mixed funds (-1.6%).

In the fixed-income space, **bond funds** received significant inflows (1.9%), which contrasted with the outflows observed in 2022 (-4.7%). This may indicate that investors who pulled money from bond funds in 2022 due to the monetary tightening are now anticipating a slowdown in the interest hiking cycle of central banks.

MMFs adapt to interest-rate environment

US **money market funds (MMFs)** benefited from significant inflows in 1H23 caused by the fear of a new banking crisis following the collapse of US regional banks and the Credit Suisse crisis (see Textbox 2). In March alone, inflows represented up to 6.8% of US MMFs NAV (11.5% NAV in 1H23). In comparison, flows into EU MMFs were slightly negative in 1H23 despite a potential flight-to-quality in March (+2%), concentrated in USD denominated CNAV. LVNAVs especially recorded significant outflows over the reporting period (-7%) while VNAVs received inflows (4%).

In terms of **performance**, EU MMFs still exhibit zero return on average but dispersion has increased with the best performing MMFs recording a 12-month average monthly performance over 1%. In contrast, EU MMF labelled in USD generally reported a negative performance in EUR due to the depreciation of the USD.

Moreover, there are signs that MMFs have been adapting to the new interest rate environment. First, the weighted average maturity (WAM) of EU MMFs reached a 10-year low in 4Q22, down to 18.7 days, thus significantly reducing their exposure to **interest rate risks**. The results of the stress tests reported for this period confirmed a low exposure to interest rate risk, with a median NAV impact of 0.02%, 0.03% and 0.04% for CNAV, LVNAV and VNAV funds respectively. In 1H23 the WAM increased again, up to 29.1 days, while remaining below historical average. This could indicate that, after reducing their interest rate exposure, managers are now positioning themselves to benefit from the higher return of money market instruments.

[8] AuM figures include MMFs.

Textbox 3

Bank stress and MMF flows

The episode of banking sector stress, originating in the US in March-April 2023, resulted in large deposit outflows from some banks.

In the US, some of the deposits moved to government MMFs, while Prime MMFs (which invest mainly in bank debt) saw some outflows. Between March 8 — when Silvergate announced its liquidation — and May 12, inflows into US government MMFs totalled USD 440bn (11% of NAV, Chart 21), while Prime MMFs saw USD 16bn in outflows (2% of NAV).

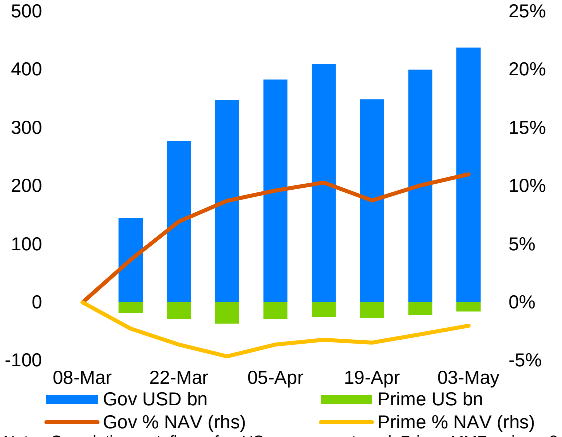
Similar trends were observed for EU USD MMFs, which are mainly used by non-EU investors. Public-debt CNAVs, which invest in US Treasuries, saw inflows of USD 33bn (20% of NAV), while USD MMFs exposed to bank debt recorded outflows of a similar amount (USD 34bn, 8% of NAV, Chart 22). This points to a migration within EU USD MMFs towards government funds. Similar migrations had been observed in March 2020, with Treasury desks of global corporates shifting their MMF allocation from bank-exposed MMFs (Prime in the US, LVNAV in the EU) to sovereign MMFs.

No such trends were observed for EU MMFs in EUR and GBP, which saw only small inflows during the period. One factor might be that there are almost no public CNAVs in those currencies, following a prolonged period of negative rates which made the business model of CNAVs challenging.

Chart 21

US MMFs

Large inflows into government MMFs

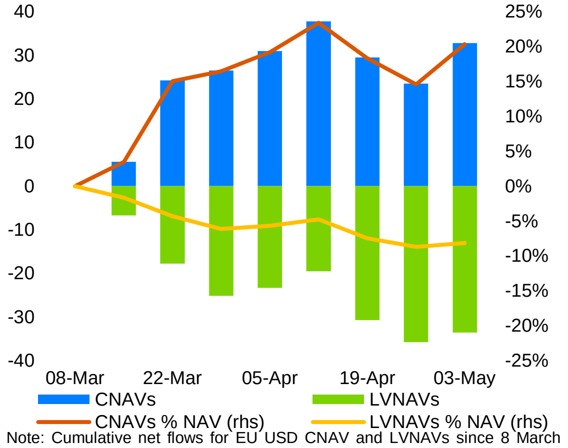


Note: Cumulative net flows for US government and Prime MMFs since 8 March 2023, in USD bn and % of NAV.
Sources: Refinitiv Datastream, ESMA.

Chart 22

EU USD MMFs

Migration from LVNAVs to CNAVs



Note: Cumulative net flows for EU USD CNAV and LVNAVs since 8 March 2023, in USD bn and % of NAV.
Sources: Crane, ESMA.

Funds resilient, but valuation concerns remain

While valuation effects account for the bulk of the decline of bond fund assets in 2022, they also faced elevated **liquidity risk** due to the elevated level of redemption requests in some jurisdictions, with significant disparities across countries. They did not face the same challenges in 1H23 but some funds reduced their portfolio liquidity. In particular, the amount of liquid assets slightly decreased in HY bond funds while portfolio liquidity increased in IG bond funds (Chart 25). Moreover, corporate bond funds (IG and HY) also decreased their cash holdings from 2.8% to 1.9%.

Despite the improvement of the macroeconomic conditions the risk of materialisation of **credit risk** remained elevated in 1H23 for HY funds (Chart 26). The credit quality of HY portfolios reached a 5-year low, now having a rating between BB– and B+ on average. Concerns remain around the solvency of indebted companies in a context of increasing interest rates.

The end of the low-interest rate environment and the increase of fixed-income yield can be beneficial to investment funds. But during the transition to this new regime, they are also exposed to significant **interest rate risk**. Against this background, bond funds decreased the maturity of their portfolio in 1H23, down to an average effective maturity of 7 years for IG and 3.7 years for HY funds, an 8-year low (Chart 25). This is further reflected in terms of duration, with the duration of the EUR IG Corporate Bond Index declining year-on-year from 4.8 to 4.5 years in 1H23. Similarly, the duration of the EUR HY corporate index receded from 3.5 to 3.1 years since 1H22. This implies that the potential valuation impact of a 100bp yield shock has further decreased by 0.3 and 0.4 percentage points, respectively.

While investment funds have generally been able to prepare for foreseeable risks, **systemic stress** is more likely to come from unanticipated shocks materialising rapidly. Seemingly isolated shocks such as the collapse of Archegos or the stress affecting LDI funds have become more frequent, as illustrated during the reporting period by the stress resulting from the US bank collapse and Credit Suisse. However, in these two cases, the initial impact did not have systemic consequences due to the swift public interventions to avoid contagion. The direct fund exposures to the affected US banks were also negligible and the exposure to Credit Suisse limited (UCITS: EUR 7bn; AIFs: EUR 4 bn; MMFs: EUR 1.9bn). Generally, supervisors must remain vigilant to vulnerabilities that can accumulate or crystallise in a period of rising rates, for instance the build up of leveraged positions that have already been observed in non-EU jurisdictions[9].

In the case of US banks, **unrealised losses** on banks' bond portfolios triggered withdrawals from depositors. Such a scenario is less plausible in the fund sector, as investor behaviour has been observed to differ from that of depositors. But valuation issues can occur in areas not subject to mark-to-market valuation, such as real estate (EUR 900bn NAV) and private equity funds (EUR 640bn). Risks stemming from exposures to the Commercial Real Estate sector (CRE) in particular have been an ongoing concern for supervisors as illustrated by the ESRB Recommendation on real estate[10] and the decision of the Central Bank of Ireland to implement leverage limits to RE funds, by restricting their recourse to borrowing up to a maximum level of 60% of their total assets[11].

In terms of leverage, there is no identical situation to Irish real estate funds in other Member States, primarily due to existing leverage limits in several jurisdictions. However, systemic risk may stem from another combination of **vulnerabilities**:

- Unrealised losses. Prices of commercial real estate properties dropped by 3% in 2022 (Chart 27), potentially leading to unrealised losses due to the use of amortised cost;
- A large market footprint, 92 % of the sector NAV is concentrated in five jurisdictions (DE, LU, FR, NL and IT)[12];
- Liquidity mismatches. These are limited in jurisdictions where the funds are closed-ended or subject to notice period, but 40% of open-ended funds offer daily liquidity in the EU.

Risks relating to real estate funds, including the follow-up to the ESRB Recommendation, will continue to be closely monitored by ESMA and the NCAs, including as part of the Article 25 AIMFD monitoring framework.[13]

9 The Bank of England recently highlighted the build-up of large positions in US Treasury futures by hedge funds, see Financial Stability Report (July 2023).

10 ESRB Recommendation on vulnerabilities in the commercial real estate sector.

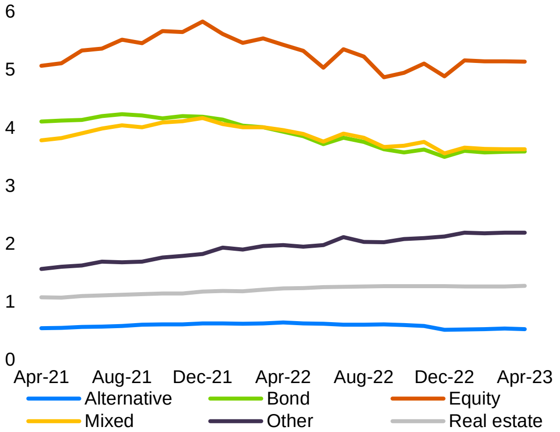
11 ESMA advice on a proposed measure by the CBI.

12 Due to the cross-border nature of AIF investment, risks may not be located in the home jurisdiction.

13 ESMA Guidelines on Article 25 AIMFD.

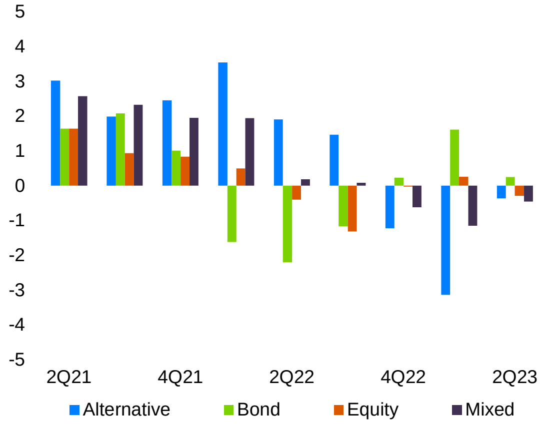
Key indicators

Chart 23
EA fund assets
Slow recovery



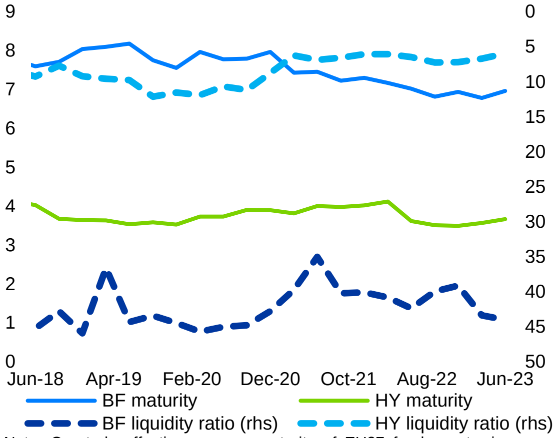
Note: AuM of EA funds by fund type, EUR tn.
Sources: ECB, ESMA.

Chart 24
EU fund flows by fund type
Muted flows



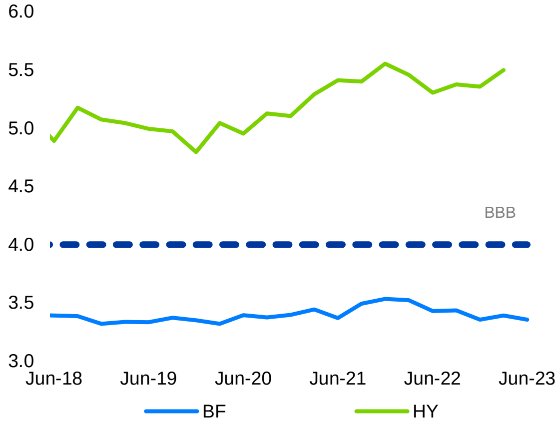
Note: EU27 fund quarterly net flows, in % of NAV.
Sources: Refinitiv Lipper, ESMA.

Chart 25
Liquidity risk profile of EU bond funds
Portfolio maturity historically low



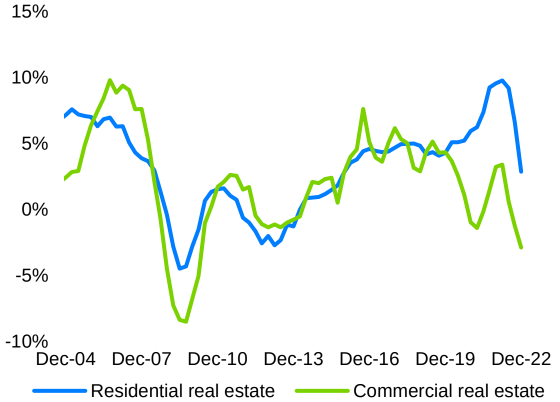
Note: Quarterly effective average maturity of EU27 fund assets, in years; ESMA liquidity ratio (rhs, in reverse order).
Sources: Refinitiv Lipper, ESMA.

Chart 26
Credit risk
Credit risk elevated in HY funds



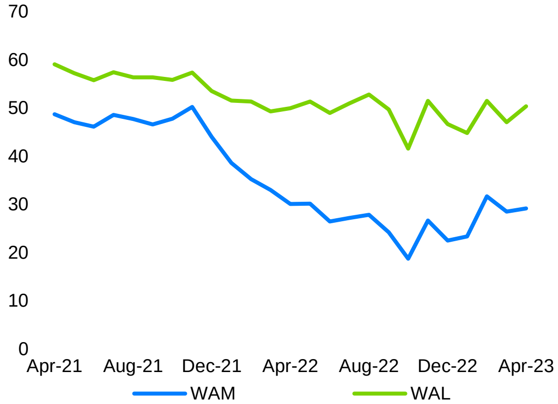
Note: Quarterly average credit quality (S&P ratings; 1= AAA; 4= BBB; 10 = D) for EU27-domiciled funds .
Sources: Refinitiv Lipper, ESMA.

Chart 27
Real estate prices
RE funds exposed to CRE losses



Note: Year over year growth of nominal quarterly residential and commercial real estate prices in the Euro Area, in%.
Sources: ECB, ESMA.

Chart 28
MMF maturity
Weighted average maturity stops falling



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

Lingering uncertainty

Investor confidence remained negative in 1H23, though up from lows 6 months earlier, especially in the current sentiment. This mirrors brighter short-term prospects and declining inflation. However, future sentiment remains subdued reflecting persisting uncertainty on the future economic outlook and enduring price pressures (Chart 31).

Household financial assets in equity and investment fund shares declined by –5.6% and –9.6% respectively in December 2022, compared to end 2021. This reflects declines in equity market valuations in 2022 and uncertainty on the future economic outlook. Conversely, household holdings of debt securities increased by +7% during 2022, after a decline of -7.7% in 2021 (Chart 32). Though annual inflation in the EU has declined to 6.1% in May 2023 from 9.9% in February,[14] it remains high, and a significant drag on real investment returns.

The **performance of retail investments** improved, even if remaining subdued. On a stylised portfolio for retail investors, the 1-year moving average (1Y-MA) of monthly gross returns, in nominal terms, stood around zero in 1Q23, compared to -0.6% in 4Q22. In real terms, however, gross returns remained negative, at -0.6%, in 2Q23, even if improving compared to -1.4% in 4Q22. (Chart 33).

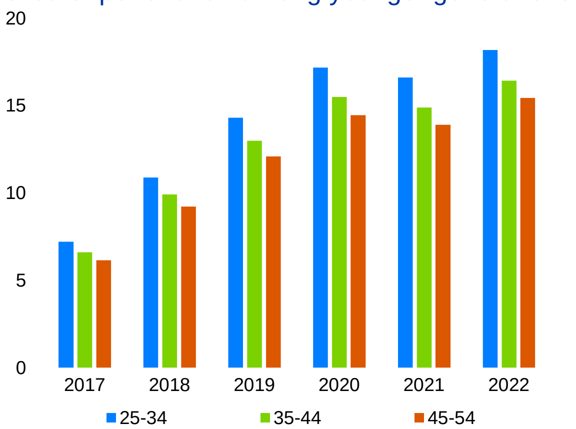
In 2Q23, **retail investor value from fund investment**, while continuing to be negative as in 1Q23. Across asset classes annual performance net of costs was around -3.7% (compared to -10% in 2Q22) (Chart 34). In 2Q23, the largest improvement in net annual performance characterised equity funds, at 8.9% from -13.5% in 2Q22. Bond fund net annual performance, even if improving from -9% in 2Q22, remained negative, at -0.4%, in 2Q23. Net annual flows showed a mixed picture, possibly linked to diverging asset class performance. Mixed funds reported EUR 46bn of annual net outflows at the end of 2Q23, compared to EUR 1bn in net inflows in 2Q22 (Chart 34). On the other hand, net flows for bonds recovered substantially, with EUR 59bn net inflows in 2Q23 compared to EUR -7bn net outflows in 2Q22.

Growing use of digital financial services

Digital technology and digitalisation have been changing the way capital markets operate and the way consumers access them. Increasingly, **digitalisation** has made it easier for the average consumer to access financial markets. Consumers with a computer or smartphone and access to the internet can make investment decisions and directly manage their own investments, provided they are comfortable with such technology. Investors who are not digitally literate may not be able to benefit from such developments and should not be excluded from receiving adequate attention from financial advisors.

Following the pandemic, which acted as a catalyst for these changes, investors have increasingly turned to **digital intermediaries**. The trend is strongest among the younger generation. For example, the use of neo-brokers (e.g., DeGiro, eToro) has been growing over time, especially among 25-34 year olds. In 2022, 18% of the overall population aged between 25-34 used digital brokers, versus 16% among those aged 35-44 and 15% among those aged 45-54 (Chart 29).

Chart 29
Neobroker use by age group
Greater penetration among younger generations



Note: Number of EU customers (or accounts) over total population by age group, %. Neo-brokers exclude cryptocurrencies and robo-advisors.
Sources: Statista, ESMA.

14 Eurostat (June 2023), "Eurostat Euroindicators"

While trading online might be convenient and facilitate investor participation in capital markets, it entails significant risks that consumers should bear in mind. **Digital platforms** often offer a variety of traditional investments alongside crypto assets and other high-risk, speculative products. In the case of investing via crypto exchanges, consumers can be exposed to severe price volatility and market risk, along with severe operational vulnerabilities and risks of market abuse.

In online environments, more generally, consumers may be exposed to **misinformation** from social media or other online sources. This risk is especially acute for younger investors – who have a greater tendency to invest online – and those with limited financial education.

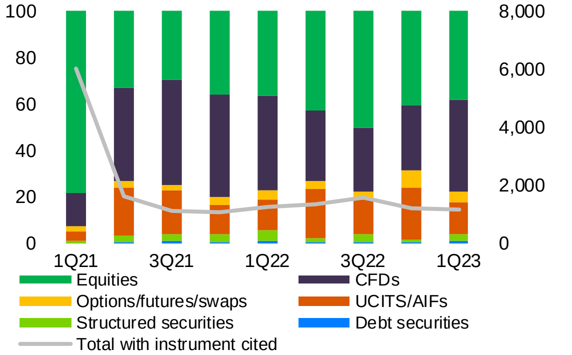
Investor protection: decline in complaints

Among NCAs reporting quarterly data, **complaints** reported through firms and directly by consumers to NCAs totalled around 3,400 in 1Q23, below the 2-year quarterly average. Complaint numbers are down from the high levels seen during the pandemic amid turbulent trading conditions and a boom in retail trading.

Interpreting patterns in complaint data requires an understanding of recent events and data limitations – such as significant time lags – and heterogeneity between countries.

This can also be seen when looking at complaints by financial instrument. In 1Q23, around three-quarters of complaints for which an instrument type was recorded related to equities or CFDs (Chart 30)[15].

Chart 30
Complaints data by financial instrument type
Large share of complaints about equities, CFDs

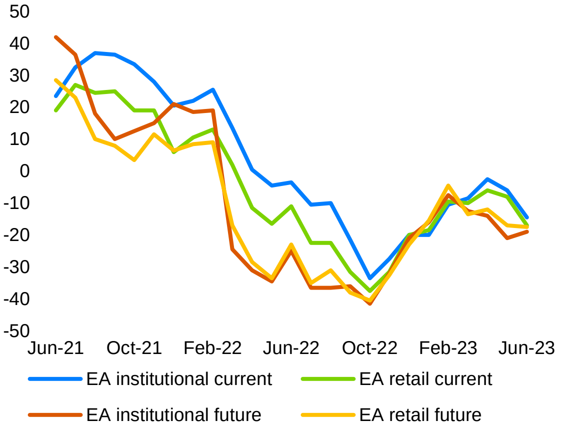


Note: Share of complaints from quarterly-reporting NCAs (n=14) received direct from consumers and via firms by type of financial instrument 'Total with instrument cited'=number of complaints via these reporting channels excluding those with instrument type not reported or reported as 'other' or 'N/A'. 'Total complaints'=number of complaints via these reporting channel whether or not further categorisation possible. 'CFDs''=Contracts for Differences.
Sources: ESMA complaints database.

15 However, these results must be interpreted with caution, as the data do not include some major retail markets for these products (e.g. the Netherlands, Poland) and only some complaints can be categorised as referring to a financial instrument.

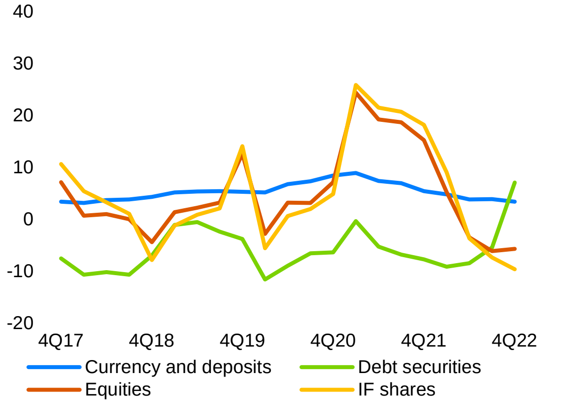
Key indicators

Chart 31
Investor sentiment
Improved current investor sentiment



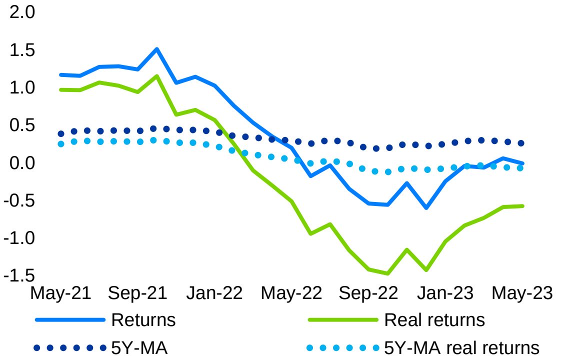
Note: Sentix Sentiment Indicators for the EA retail and institutional investors on a ten-year horizon. The zero benchmark is a risk-neutral position.
Sources: Refinitiv Datastream, ESMA.

Chart 32
Growth rate in financial assets
Strong growth in debt securities



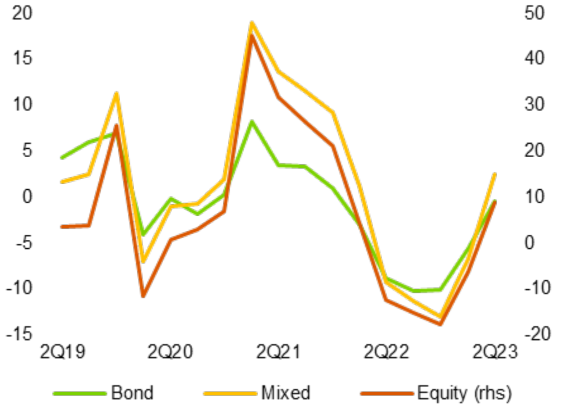
Note: Average annualised growth rates of financial asset classes held by EU27 households, in %. IF shares=investment fund shares. Ins.=insurance companies, Other assets=other accounts receivable/payable.
Sources: ECB, ESMA.

Chart 33
Nominal and real returns
Portfolio returns improve



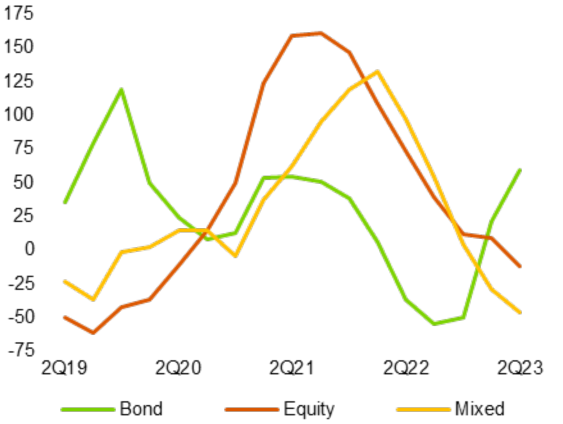
Note: One-year moving average of the monthly gross nominal and real returns of a stylised EU household portfolio, in %. Asset weights, computed using National Financial Accounts by Institutional Sectors, are 36% for collective investment schemes, 39% for deposits, 22% for shares and 3% for debt securities. 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 34
Retail UCITS net return by asset type
Returns subdued



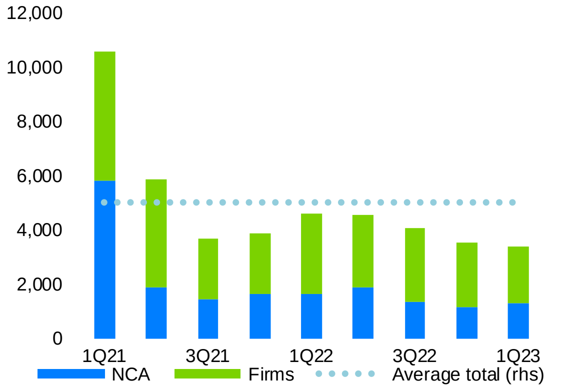
Note Evolution of net annual performance (net of ongoing costs (TER), subscription and redemption fees) of EU27 UCITS, retail investors only, by asset class, in %.
Sources: Refinitiv Lipper, ESMA.

Chart 35
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 36
Overall complaint volumes
Complaints below 2Y average

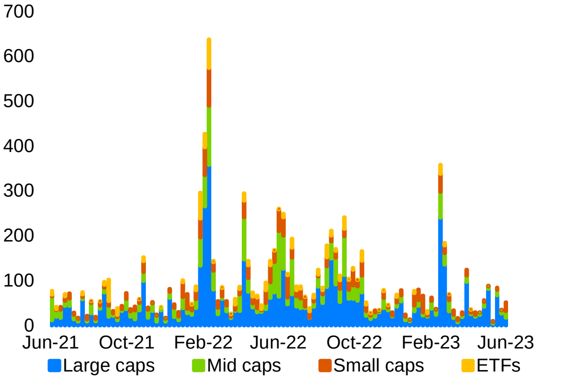


Note: Number of complaints recorded by quarterly-reporting NCAs (n=14) via given reporting channels. "NCA"=Reports lodged directly by consumers with NCAs. "Firms"=Complaints recorded by NCAs via firms. "Average total"=average total number from 1Q21 to 1Q23.
Sources: ESMA complaints database.

Infrastructures and services

Trading venues: uptick in circuit breakers in March

Chart 37
EU circuit-breaker occurrences
Temporary surge in March 2023



Note: Weekly number of circuit-breaker trigger events by type of financial instrument and by market cap registered on 29 EEA30 trading venues for all constituents of the STOXX Europe Large/Mid/Small 200 and a large sample of ETFs tracking these indices or some of their subindices.
Sources: Morningstar Real-Time Data, ESMA.

With the exception of the volatile market conditions linked to the banking sector market stress, **circuit breaker** events were stable overall. In the second week of March trading halts surged to more than five times their overall 1H23 average following the stress in the banking sector (Chart 37). During that time, financials accounted for 65% of total circuit breaker events, while their relative share during 1H23 overall was significantly lower, at 32% (Chart 39).

After observing low **equity trading volumes** in the EEA in 2H22, turnover increased again in 1H23 (+12% semi-annually), in line with increasing equity market volatility. Overall trading volumes remained below those observed in 1H22 and 1H21, and displayed stable composition of equity trading in dark pools, periodic auctions and systematic internalisers (+1% in lit trading over 1H23 - Chart 38).

Clearing: commodity margins normalise

CCP Margins related to commodity products, mainly linked to ETD products decreased over the course of 1H23, in line with the decrease in energy derivative prices, and after the peak reached in 3Q22 (Chart 42). Since the entry into force of the market correction mechanism (MCM), in February 2023, gas prices have remained well below the threshold for MCM activation, mainly due to improved liquid natural gas supply and lower than anticipated gas demand in the relatively mild winter. In this context, the MCM has not shown discernible effects in the first half of 2023 on prices, trading liquidity or CCP risk management and margin requirements. This is in line with the findings of ESMA's March report assessing the effects of the MCM.[16]

CRAs: over 14,000 new EEA ratings issued

Credit rating agencies (CRAs) issued over 50,000 **new ratings,** with at the same time about 40,000 fewer ratings in 1H23 (from debt maturing or rating withdrawals), thus increasing the number of outstanding ratings by about 10,000. Rating issuance was higher than in 2H22, when about 42,000 were issued. Of the new ratings issued in 2023, about 14,000 (29%) were for EEA issuers. Almost all of these new EEA ratings, 88%, were for corporates, with sovereigns and structured finance each accounting for 6%. These proportions are similar to 2H22. Outstanding EEA ratings grew by about 3,000 ratings, with trends remaining as in previous years. Growth continued for structured finance, with slower growth in most other assets except for sovereign ratings where there was a slight fall (Chart 43).

Among new ratings for EEA debt, most were issued by smaller CRAs with 58% issued by

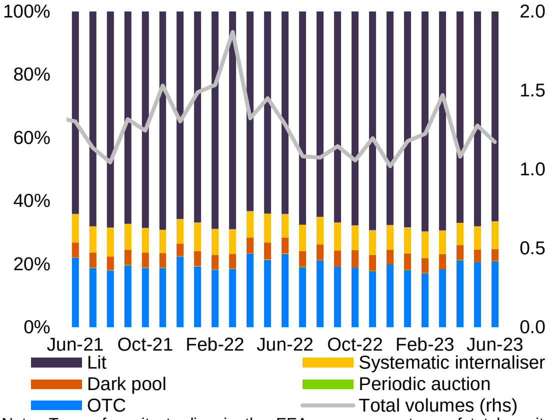
16 The report notes that no changes in EU gas derivatives trading could be identified that could be attributed to the MCM. At the time of the report, no noticeable changes in CCP risk management or in margin requirements were found that could be attributed to the MCM. However, the absence of a significant impact of the MCM on the trading and clearing environment should not be understood as the MCM not having any impact and reflects the market environment characterised by low gas prices and high storage levels. Impacts of the MCM could be different as the market environment changes and the activation of the MCM is anticipated by market participants. See ESMA (March 2023), "Effects Assessment of the impact of the market correction mechanism on financial markets"

CRAs not in the 'big three' (Fitch, Moody's, and Standard and Poors). However, the three **largest CRAs** continued to be predominant in the market for ratings solicited by the debt issuer, issuing 92% of these, up from 88% in 2H22.

Regarding **rating actions** on EEA issuers and debt, there was a marked fall in the number of affirmations, from 47,000 in 2H22 to 37,000 in 1H23, upgrades remained broadly unchanged at 4,300, while downgrades rose to 3,700 from 2,700. Affirmations fell in each asset class. Surprisingly, given that they account for a small share of ratings, the overall increase in downgrades was largely driven by sovereigns, where downgrades rose from just 15 in 2H22, to 865 in 1H23, reflecting CRA assessments of a credit deterioration in several member states, as discussed in the securities section above. The number of sovereign upgrades also dropped, to 300 from 490. For corporates, there was a small increase in upgrades, to 3,200 from 3,100, and a fall in the number of downgrades to 2,300 from 2,600. For structured finance, downgrades remained low, up to 100 from 86, while upgrades were unchanged from 2H22 at 560.

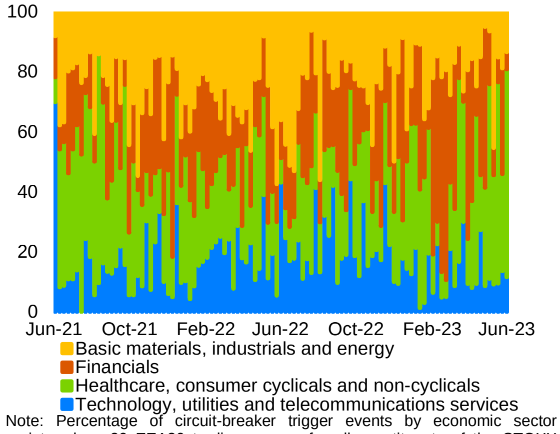
Key indicators

Chart 38
Equity trading volumes
Volumes increased temporarily



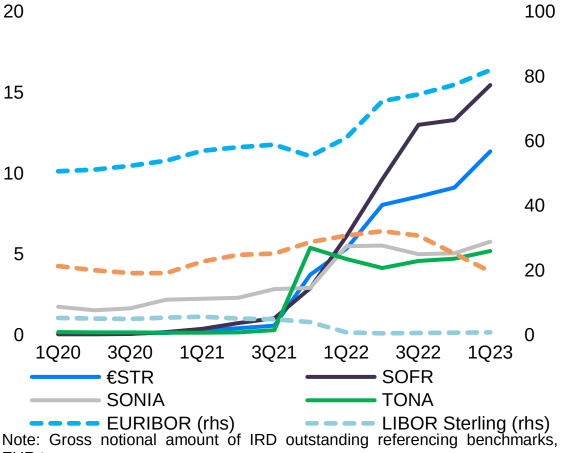
Note: Type of equity trading in the EEA as a percentage of total equity turnover. Total equity trading turnover in EUR trillion (rhs). Last available data point is April 2023.
Sources: FIRDS, FITRS, ESMA.

Chart 39
EU circuit breaker trigger events by sector
Temporary surge in financials



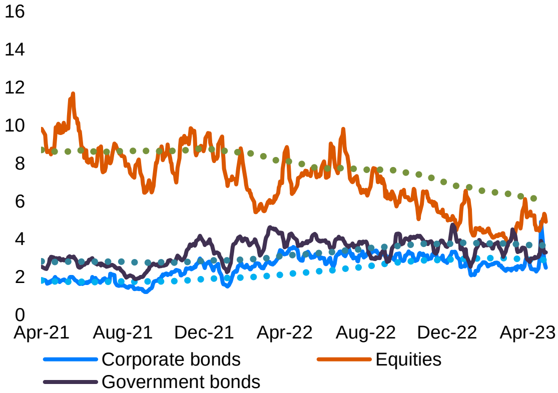
Note: Percentage of circuit-breaker trigger events by economic sector registered on 29 EEA30 trading venues for all constituents of the STOXX Europe Large/Mid/Small 200. Results displayed as weekly aggregates.
Sources: Morningstar Real-Time Data, ESMA.

Chart 40
Interest-rate derivatives linked to new risk-free rates
Continued uptake



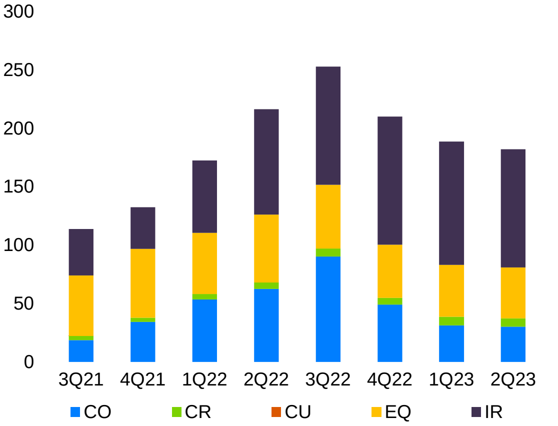
Note: Gross notional amount of IRD outstanding referencing benchmarks, EUR tn.
Sources: TRs, ESMA

Chart 41
Settlement fails in EU CSDs
Equity settlement fails down for EQ



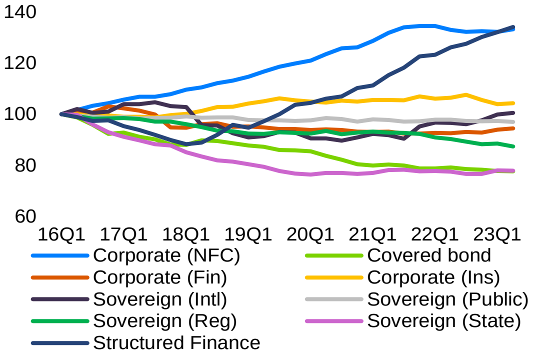
Note: Share of failed settlement instructions in the EEA30, in % of value, one-week moving averages. Missing data for some CSDs prior to mid-March 2020. Dotted lines represent one-year moving averages of the respective asset classes.

Chart 42
Initial margins collected by EU CCPs by asset class
Commodity margins down significantly



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

Chart 43
Outstanding ratings
Growth continues for structured finance ratings



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

1H23 financing driven by corporate bond markets

After a challenging 2022 amid deteriorating macrofinancial conditions, the **ability of non-financial corporations to raise funds** in capital markets showed signs of revival in early 2023 in debt markets. Market-based financing availability ended 2022 in negative territory, below the minimum levels observed during the COVID-19 pandemic. Varying by market segment, financing availability started to pick up in 1H23 (Chart 46). On the one hand, primary equity markets struggled to pick up from the lows of 2022 amid continued investor uncertainty and high volatility in secondary markets, both also linked to the banking turmoil. On the other hand, corporate bond markets saw record first quarter issuance.

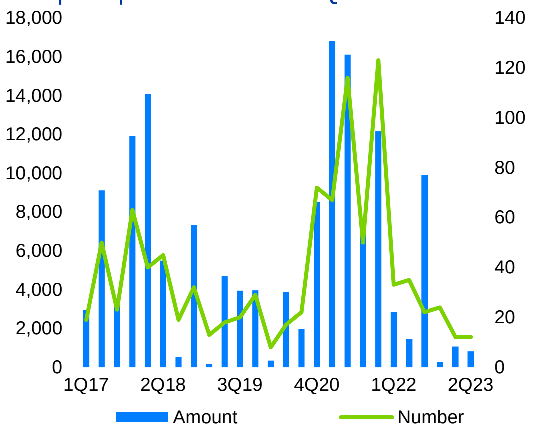
According to the ECB SAFE survey, between October 2022 and March 2023, the financing gap further increased with European firms reporting increased demand for external financing across different instrument types, coinciding with lower availability of external financing.[17] Overall, the demand was smaller for **small and medium enterprises (SMEs)** than for large firms. The former reported an increasing demand for debt securities and a decline for equity instruments, in line with previous surveys.

Flat equity issuance

The challenging geopolitical backdrop, rising rates and unexpected turbulence in the banking sector continued to weigh on equity dealmaking. Despite a short-lived rally in early 2023, **primary equity markets** remained mostly flat in 1H23. Total equity issuance (EUR 37.3bn) picked up by 18% compared to the lows of 1H22, but barely increased compared to 2H22 (EUR 35.3bn). Overall, 1H23 equity issuance still remains 22% below the 5-year moving average.

The European **initial public offerings (IPOs)** market remained subdued in 1H23, with most deals continuing to be pushed further in time waiting for more favourable secondary market conditions. There were 24 IPOs in 1H23, half of the number of the previous quarter alone (46) and 65% less than 1H22. This amounted to a total of EUR 1.9bn of proceeds, the lowest IPO activity since 1H12. There was a concentration of IPOs in Italy (12 deals), with the consumer cyclical goods (38% of total amount raised, EUR 0.7bn) and the industrial sector (26%, EUR 0.5bn) dominating the landscape in terms of amount raised. The majority of equity deals (95% of the total issuance) were originated by already listed firms seeking to recapitalise. **Follow-on issuance** in 1H23 amounted to EUR 36bn, slightly above the levels of the end of 2022 (+6%).

Chart 44
Number and amount of EEA IPOs
Sharp drop in IPOs since 4Q22



Note: Quarterly number and amount (n EUR bn) of IPOs deals issued by EEA firms.
Sources: Refinitiv Eikon, ESMA.

Renewed confidence in bond finance

After a slow 2022, the **European corporate bond** primary market recovered in 1Q23 with a record quarterly issuance since the early 2000s. The surge seemed linked to interest rate expectations rather than to short-term liquidity needs. On the one hand, with the prospect of higher for longer interest rates companies have been rushing to issue bonds in order to secure cheaper deals. On the other hand, expectations on cooling inflation and slowing rate hikes particularly boosted the demand of investors

[17] See ECB (2023), 'Survey on the access to finance of enterprises in the euro area' – October 2022 to March 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.

looking to capitalise on these deals and lock in historically high yields. However, the dealmaking activity normalised following the banking turmoil which was linked to higher volatility in bond markets.

Total **corporate bond** issuance in 1H23 stood at EUR 934bn, of which EUR 480bn were non-rated bonds (+50% from 2H22). While 1Q23 posted record levels (+45% above the 5Y-MA), issuance normalised in 2Q23 but still stood at elevated levels (6% above the 5Y-MA). Companies with the highest credit ratings almost totally dominated the market, with total issuance making up for 90% of the rated bonds (EUR 406bn, double the issuance in 2H22 and 18% larger than 1H22). If IG companies were more attractive in a context of higher yields, investors were more cautious in the high yield (HY) segment. The banking related market stress also added further uncertainty around riskier issuers. Although showing mild signs of revival in May and June, HY bond issuance continued the muted path of 2022, with a total of EUR 48bn issued during the reporting period. This is also reflected by the average rating at issuance pointing towards a search for quality in fixed income markets, stable at A- (From BBB in 1Q22) (Chart 49).

Concentration around short-term maturities continued along the end-2022 trends, with the **average weighted maturity** at issuance down to 5 years in March 2023 from 10 years in January 2022 and stabilising at 6.5 years as of end-June 2023. Although they offer lower returns, short term-bonds are characterised by high liquidity and safety, hence they are highly desirable in periods of heightened volatility. The market size of bonds with a maturity range between 1 and 5 years is close to EUR 500bn for 1H23 (+53% from 2H22 and +65% compared to 1Q22). The issuance of money market instruments also points towards increased demand for shorter maturities, surpassing the peak observed in 2022. Issuance volumes of short-term bonds amounted to EUR 1tn (5% more than 2H22), 42% above the 5Y-MA. This market was dominated by the financial sector (EUR 782bn).

Against the revival of primary corporate fixed income markets, the levels of **outstanding debt** have increased further to a total of EUR 10.4tn in 2Q23 (from EUR 9.4tn as of end 2020). In this context, corporate debt sustainability remains a considerable risk. The resilience of European corporates will also depend on the ability of firms to withstand the costs related to the substantial amount of debt maturing in the upcoming years, which will need to be rolled over at a much higher cost.

Structured deals remain muted

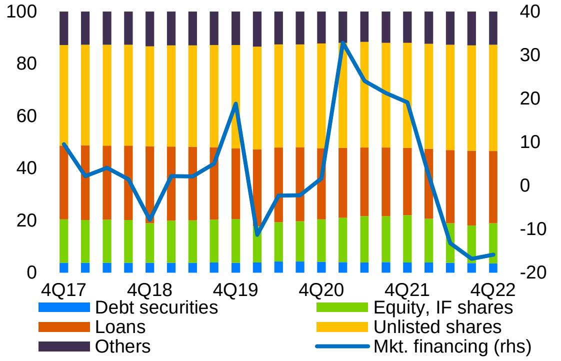
Industry data show that the issuance of **securitised products** significantly declined by 45% in 1Q23 compared with the previous quarter (and by -44% with respect to 1Q22) for a total of EUR 65.5bn (out of which 55% was placed)[18]. From the public investor side, the ECB announced that its asset purchase programme portfolio, of which EUR 17bn ABS, would decline by EUR 15bn on average in 2Q23.

Within securitised products, **collateralised loan obligations (CLOs)** issuance remained muted. According to JP Morgan data, total CLO issuance in 1H23 totalled EUR 11.7bn, 6% below the previous 6 months and 15% below 1H22.

[18] See AFME (2022), *Securitisation Data Snapshot: Q1 2023*.

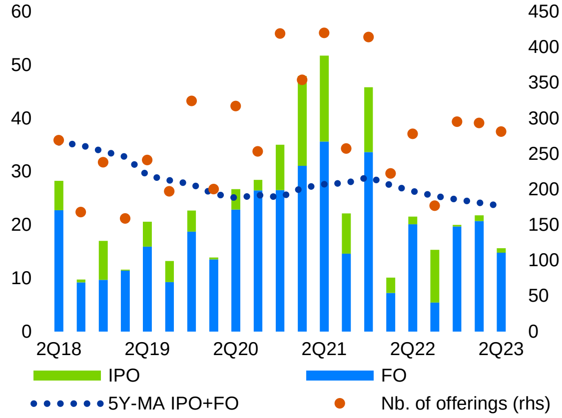
Key indicators

Chart 45
Market financing
Rapid decline in market financing availability



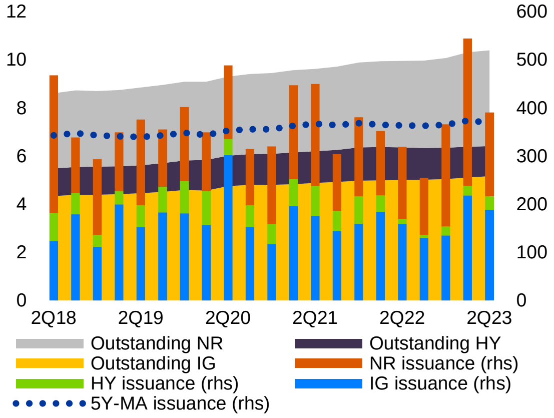
Note: Liabilities of EA non-financial corporations (NFC), by debt type as a share of total liabilities. Others include: financial derivatives and employee stock options; insurance, pensions and standardised guarantee schemes; trade credits and advances of NFC; other accounts receivable/payable. Mkt.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

Chart 46
Equity issuance
Few deals in 1H23



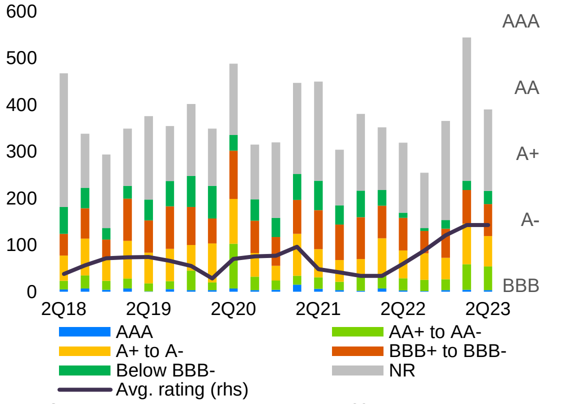
Note: Equity gross issuance in the EEA30 by type, EUR bn, and number of equity offerings. 5Y-MA=five-year moving average of the total value of equity offerings.
Sources: Refinitiv EIKON, ESMA.

Chart 47
Corporate bond issuance and outstanding
Record issuance in 1Q23, high debt levels



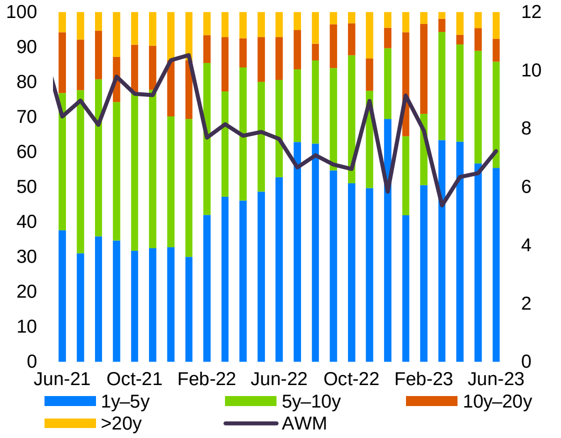
Note: Quarterly investment-grade (rating >= BBB-), high-yield (rating < BBB-) and non-rated corporate bond gross issuance in the EEA30 (rhs), EUR bn, and outstanding amounts, EUR tn. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Chart 48
Corporate bond issuance by rating class
Increasing corporate bond quality at issuance



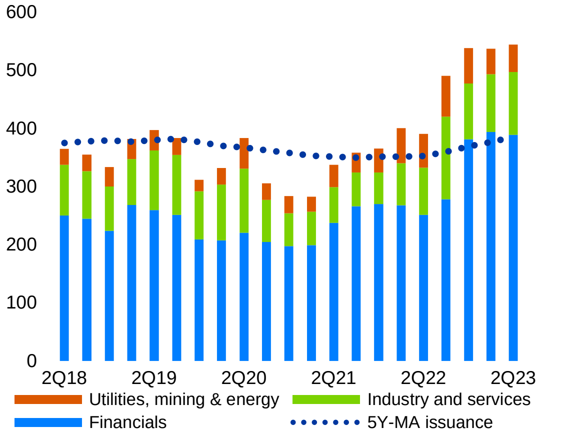
Note: Corporate bond gross issuance in the EEA30 by rating bucket, EUR bn. Avg. rating=weighted average rating computed as a one-year moving average of ratings converted to a numerical scale (AAA=1, AA+=2, etc.) excluding non-rated bonds. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON,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

Chart 49
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 50
Short-term bond issuance by sector
Close to record issuance in 1Q23



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

Sustainable finance

As the energy crisis subsides and attention turns to the impact of higher interest rates, one possible implication is that the renewed focus on banking sector risk takes investors' and policymakers' attention away from the objective of financing the transition to a low-carbon economy. There are indeed some indications that the political mood may be shifting – with some European leaders calling for a 'pause' in environmental rulemaking, and recent global summits falling short of expectations for new climate-related engagements[19] – while several large insurers have announced their withdrawal from a key climate action coalition.[20]

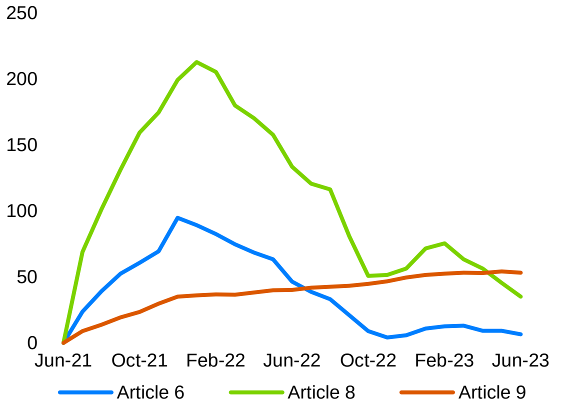
Nevertheless, the market for **ESG products and sustainable investment** in Europe is still growing, with many investors seemingly unphased by broader market developments. Upward movements in bank credit spreads in green and conventional bonds were comparable despite broader concerns around the potential overvaluation of 'green' assets.

Impact of SFDR downgrades on fund flows

The **reclassifications of funds** from SFDR Article 9 to Article 8 observed in 4Q22[21] continued during the first quarter of 2023, albeit at a slower pace. According to Morningstar, 14 SFDR Article 9 funds were 'downgraded' to Article 8[22] compared to more than 300 funds during the last quarter of 2022.[23] Market observers highlighted that this might reverse in the near future following clarification from the European Commission that allows fund managers to adopt their own definition of a "sustainable investment".[24]

Despite these reclassifications, net flows into Article 9 funds have remained resilient. This category of funds never experienced quarterly net outflows on an aggregated basis since the entry into force of the regulation, while investors have pulled EUR 177 bn out of Article 8 funds since February 2022 (Chart 51).

Chart 51
EU fund flows by SFDR disclosure regime
Article 9 funds continue to attract investors



Note: Cumulative monthly net flows of EU domiciled funds since March 2021 by SFDR disclosure regime, EUR bn.
Sources: Morningstar, Refinitiv Lipper, ESMA.

A key question from an investor protection perspective is whether the confusion resulting from the use of SFDR Article 9 as an actual marketing label – and the associated wave of reclassifications – had any impact on investor allocations. Indeed, if the choice of SFDR disclosure regime was an important driver of fund flows, switches between categories could lead to capital misallocation and drive investors away from sustainable investing. However, funds reclassified from SFDR Article 9 to Article 8 received more inflows (in relative terms) than funds that remained Article 9 funds during the wave of reclassifications (Chart 52), with the decision to reclassify not a statistically significant driver of the difference.[25] Similarly, an analysis of flows during the 3 and 6 months before and after reclassification shows no clear impact on downgraded funds relative to non-downgraded ones. These persistent inflows might suggest that investors looking to invest in ESG funds are paying attention to the sustainability profile of

19 Financial Times, G7 disappoints on climate progress without deadlines on gas and coal use, 21 May 2023.

20 Financial Times, Five major insurers quit industry net zero initiative, 26 May 2023.

21 See ESMA (2023), Report on Trends, Risks and Vulnerabilities, No.1, pp.34-35.

22 Morningstar (2023), SFDR Article 8 and Article 9 Funds: Q1 2023 in Review, 4 May, pp.11-13.

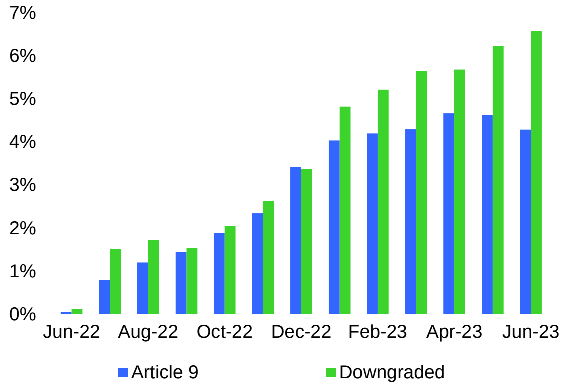
23 Morningstar (2023), ESG Fund Downgrade Accelerates, 2 February.

24 Financial Times (2023), ESG fund downgrades in Europe look set to reverse, 1 May.

25 The larger flows into downgraded funds reflects the larger share of passively managed funds, which benefitted from strong inflows overall during the observation period.

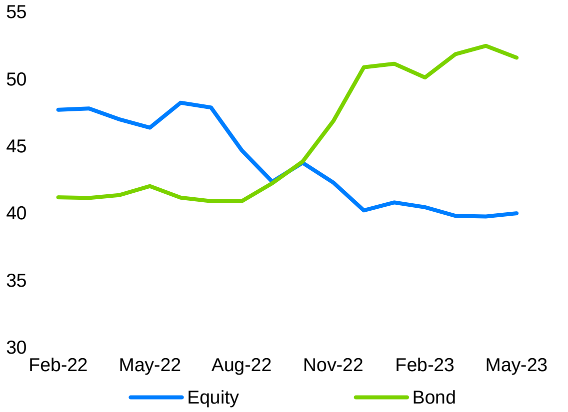
funds rather than their specific SFDR disclosure regime.[26]

Chart 52
Net flows into Article 9 funds
Downgrades not a clear driver of fund flows



Note: Cumulative flows into SFDR Article 9 funds and funds downgraded from Article 9 to Article 8, in % of assets under management.
Sources: Morningstar, ESMA.

Chart 53
Share of equities and bonds in ESG mixed funds
Portfolios shift from equities to bonds



Note: Monthly share of equities and bonds held in ESG fund portfolios, median values.
Sources: Morningstar, ESMA.

Mixed-fund reallocation

Following the rise in interest rates, the expected behaviour from financial market participants would be to increase their exposure to bonds and reduce their holdings of equities as newly issued bonds offer a better risk / return profile than in a low interest rate environment. Given their narrower investment universe, often the result of ESG investment strategies such as exclusions or thematic investing, ESG funds may be more constrained in their portfolio reallocation compared to non-ESG peers. **Mixed funds**, with their ability to allocate their portfolio between equities and bonds, represent the ideal population to test this hypothesis.

A sample of 2,756 UCITS active mixed funds (including 534 ESG funds[27]) with combined AuM of EUR 238bn as of May 2023 shows that ESG mixed funds increased their exposure to bonds and reduced their holdings of equities since the beginning of the rate tightening cycle (Chart 53). In comparison, the weight of bond (equity) holdings in non-ESG mixed funds increased (decreased) by relatively less, suggesting that ESG mixed funds are not particularly constrained in terms of portfolio reallocation.

ESG bond market continues to grow

The market for sustainability-related fixed-income products continued to grow with the total value of **ESG bonds** outstanding reaching EUR 1.7 trillion in June 2023, up 28% in 1 year. However, issuance volumes remained lower across all ESG bond types, down 8% in 1H23 from 1H22. Green bonds, which continue to dominate the ESG bond market with a 63% share, also saw slightly lower issuance volumes in 1H23 compared with 1H22 (-12%; Chart 56). Almost all (99%) ESG bond issuances in 2023 were labelled[28], signalling a high commitment to adhere to existing market standards. The forthcoming EU Green Bond Standard agreed upon in February[29] may further support market growth by tackling transparency issues and strengthening credibility in the market.

The previously observed drop in private sector issuances also continued: corporate ESG bond issuance decreased 26% from 1H22, compared to a 50% increase in the overall corporate debt market. In contrast, public sector issuance volumes increased in 1H23, up 22% compared to 1H22, led by green bonds.

26 However, other factors could also explain this result, as investors might neglect or misunderstand the information they receive.

27 Morningstar definition of sustainable investment fund is used to identify ESG funds. Morningstar classifies a product as a sustainable investment "*if the use of one or more approaches to sustainable investing is central to the investment products overall investment process based on its prospectus or other regulatory filings*" (see Morningstar, 2022).

28 Labelled bonds are either certified by the Climate Bond Initiative or aligned with the ICMA Principles.

29 European Council (2023): *Provisional agreement reached on European green bonds*.

Textbox 4

Biodiversity: the next frontier in ESG investing

While climate-related concerns have long dominated the environmental pillar of ESG investing, increasing attention is now being paid to biodiversity risks and the importance of the ecosystem to the global economy. In a 2022 report, the Network for Greening the Financial System (NGFS) acknowledged that the failure to account for and mitigate the implications stemming from nature-related risks, including biodiversity loss, can have significant risks for financial firms and financial stability.[30]

The growing attention has prompted several initiatives aimed at a better understanding and assessment such risks, including by developing conceptual frameworks or putting forward concrete metrics to measure pressure points and risk exposures. Biodiversity is defined as "*the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part, including diversity within species, between species and of ecosystems*",[31] and it strongly impacts various aspects of the environment. The economic and financial risks stemming from biodiversity loss, often split into physical and transition risks, thus uniquely interact with several other environmental risks, most notably climate change.[32] While biodiversity risks are typically first associated with impacts on the global economy, they can transmit to the financial system, including through the impairment of assets and impacts on corporate profitability, e.g. when fresh water availability for production processes is restricted and assets become stranded as a consequence. Additionally, contagion effects and feedback loops with the real economy may amplify shocks or contribute to the build-up of risks over longer time horizons. The development of a better understanding of biodiversity-related financial risks is thus essential to assess the potential interlinkages between our environment and financial stability.

Biodiversity as an investment

However, many existing challenges in the context of sustainable investing, such as data availability or the comparability of metrics, are exacerbated in the context of biodiversity. This is mainly because the topic covers multiple living organisms, making it difficult to single out singular, standardised metrics. Risk measurement issues are made worse by the fact that biodiversity changes often result from compounding effects and the potential crossing of tipping points (i.e. changes that may be abrupt and sometimes triggered by cumulative impacts). Additionally, exposure to biodiversity risks depends significantly on a firm's geographical location and the sector in which it operates, as certain activities or assets may be more or less dependent on nature's impact. The Kunming Global Biodiversity Framework, adopted at COP15 in December 2022, aims to address this by defining 21 concrete action-oriented targets and a monitoring framework to support global action to preserve and restore biodiversity by 2030.[33]

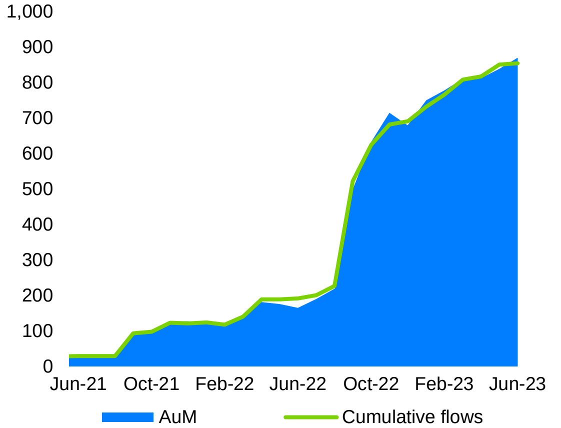
The financial sector has not only been identified as a key sector at risk of suffering from the implications of biodiversity loss, but also as a crucial actor in contributing to preserving nature, notably by channelling funds towards activities aimed at supporting biodiversity restauration. Against this background, and as investors show increasing interest in biodiversity investing, a growing number of biodiversity-related financial products are being launched.

Albeit still representing a comparably small niche in the market (less than 0.1% of SFDR Art.8-9 fund AuM), funds targeting biodiversity have seen a surge in inflows over the past year, with cumulative flows into EEA-domiciled biodiversity funds reaching EUR 854 million in the two years to June 2023, (Chart 54). Two thirds of these funds are disclosing information under Article 9 SFDR and 73% have been launched since 2022, confirming the new interest in these products. While the market is still small, with EUR 870 million in AuM as of June 2023, the growing public scrutiny and increasing understanding of biodiversity risks raise expectations for biodiversity-related financial products to rapidly increase in number and size over the next years, hence warranting increased levels of market monitoring.

Chart 54

EU biodiversity funds cumulative flows and AuM

Steady growth of biodiversity funds



Note: Assets under Management and cumulative fund flows of EEA-domiciled funds that make refeence to biodiversity in their name, EUR million.
Sources:Morningstar Direct, ESMA.

Carbon market steady

The price of EU **emission allowances** (EUAs) ended the first half of 2023 slightly higher at EUR 85/tCO2 after a 30% drop caused by Russia's invasion of Ukraine (Chart 60). Market sentiment turned positive after a deal was struck in December on the revision of the EU Emissions Trading System (ETS) Directive. The review foresees a faster reduction in the number of new EUAs issued every year, the system's extension to maritime transportation, and the establishment from 2027 of a new self-standing ETS targeting fuel distribution for road transport and buildings.

The share of open hedging positions in EUA futures by non-financial corporations remained close to its long-term average of between 60% and 65%. Meanwhile, investment funds' net non-hedging positions turned negative as their number of short positions doubled in 1H23.

30 See NGFS INSPIRE (2022): *Central banking and supervision in the biosphere: an agenda for action on biodiversity loss, financial risk and systemic stability.*

31 See Convention on biological diversity (1993), Article 2.

32 For further information on the interaction between biodiversity and climate change see e.g. United Nations Climate Change (2017): *Climate Change and Biodiversity: Opportunities and Risks*.

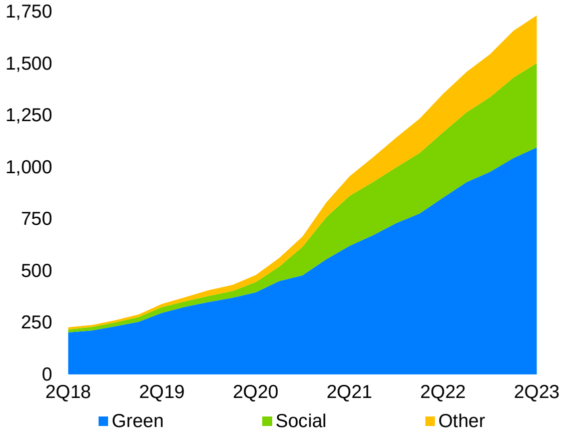
33 Convention on biological diversity (2022): Global biodiversity framework and monitoring framework

Key indicators

Chart 55

EU ESG bonds outstanding

Market size continues to increase

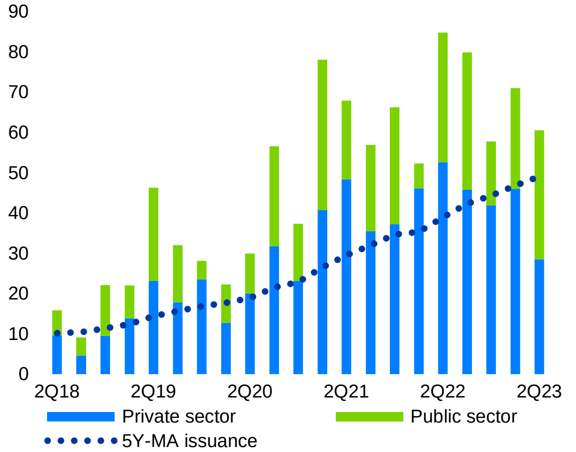


Note: Total amount of ESG bonds outstanding issued by EEA30-domiciled issuers, EUR bn.
Sources: Refinitiv EIKON, ESMA.

Chart 56

Green bond quarterly issuance

Green bond corporate issuance slowed in 2Q

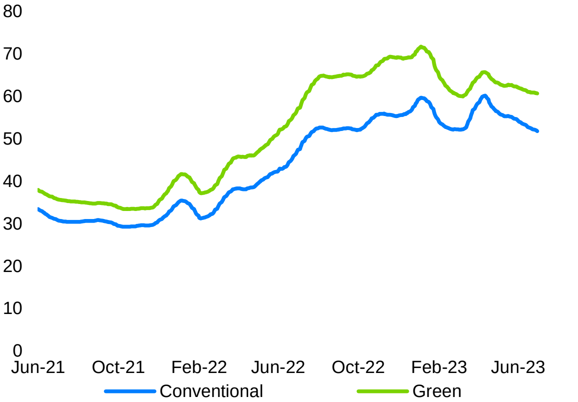


Note: Green bond gross issuance in the EEA30 by sector, EUR bn.
Sources: Refinitiv EIKON, ESMA.

Chart 57

Corporate green bond and conventional bond liquidity

Smaller bid-ask spread differential

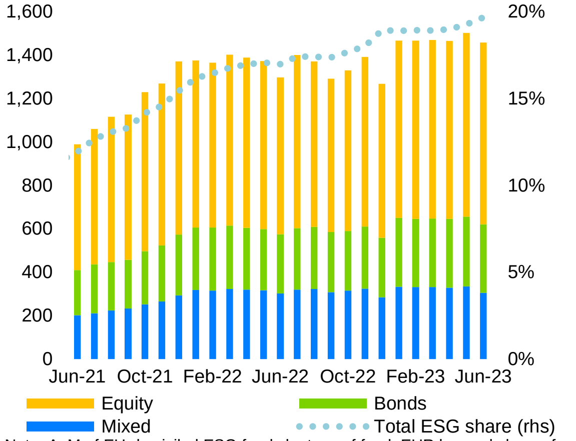


Note: One-month moving average of the bid-ask spread of green and conventional bonds from green bond issuers included in the Markit iBoxx EUR Corporate bond index, in bps.
Sources: IHS Markit, ESMA.

Chart 58

ESG fund assets

Stable ESG fund AuM, growing market share

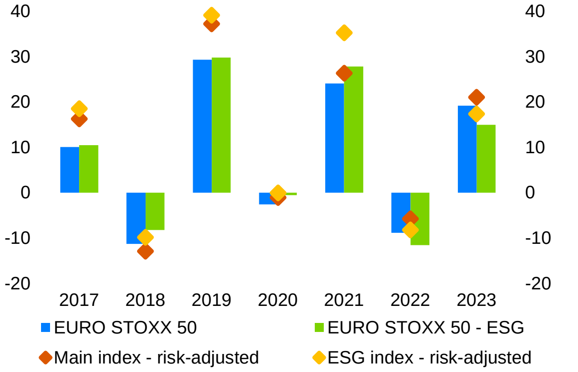


Note: AuM of EU-domiciled ESG funds by type of fund, EUR bn, and share of ESG fund AuM in total fund AuM (rhs), in %.
Sources: Morningstar, Refinitiv Lipper, ESMA.

Chart 59

ESG leaders index risk-adjusted returns

ESG 'leaders' underperform in 1H23



Note: Annual returns of the EURO STOXX 50 and its ESG leaders subindice, in %. The EURO STOXX ESG leaders 50 is based on the STOXX Global 1800 on which exclusions and a ranking system for each three pillars (environmental, social and governance) are applied. Risk-adjusted returns, on rhs, measured as Sharpe ratios. Current year data year-to-date.
Sources: Refinitiv Datastream, ESMA.

Chart 60

Emission allowance prices

Carbon prices steady

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

Crypto-assets and financial innovation

Crypto rebounds in 2023

Crypto-assets valuation levels rebounded in 1H23, following massive valuation declines in 2022, marked by a series of prominent failures. The total **crypto-asset market capitalisation** rose from EUR 800bn in December 2022 to EUR 1.15tn in June 2023 – a 40% year-to-date increase but remaining below half of its November 2021 peak (Chart 65). The price of Bitcoin (BTC) grew by about 75%, pushing its market share up to almost 50% and driving an increase of the portion of the market that relies on a proof-of-work consensus mechanism (Chart 68).

Yet, **trading volumes** remained markedly below their historical levels, suggesting that the rally was supported by persistently weak market liquidity (Chart 66). In fact, recent market research shows that Bitcoin market depth was at a 10-month low in April 2023.[34] Enforcement actions , including against Binance and Coinbase by the SEC accused both entities of operating unregistered securities exchanges – also weighed on investors' sentiment.

Stablecoins saw continuous outflows and shrank to a market size of EUR 120bn in June 2023, down from a peak of EUR 180bn in May 2022 (Chart 68). In March, the second largest stablecoin, **USD-Coin** (USDC), temporarily lost its peg when Circle, its issuer, revealed a USD 3.3bn exposure to failing Silicon Valley Bank (around 8% of its reserves at that time). It took it three days to recover its peg (Chart 62), after US authorities stated that SVB creditors would be repaid in full. Meanwhile, customer withdrawals continued and USDC's market capitalisation is now close to EUR 250bn, i.e. 40% less than prior to the crisis. The drop in size of the third largest stablecoin **Binance USD** (BUSD) was even more dramatic, from over EUR 20bn last year, to EUR 4bn in June 2023, following a Wells notice from the SEC, accusing Paxos, the issuer of BUSD, of offering unregistered securities and demanding that the firm stop minting new tokens. Tether (USDT) benefited from the turmoil and increased its market share among stablecoins from around 40% to over 65%, in spite of recurring criticism for its lack of transparency.

Textbox 5

The Impact of Twitter's logo change on Dogecoin

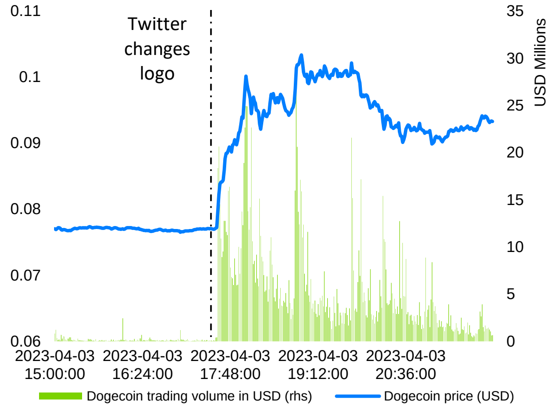
On 3 April 2023, Twitter temporarily changed the blue bird logo on its homepage and the loading screen to a cut-out image of the Dogecoin symbol. The market responded enthusiastically to the company's unexpected endorsement which investors perceived as a positive signal for the coin's future. The price of Dogecoin increased by more than 30% within an hour and saw a surge in trading volume. This notable development not only showcases the highly speculative nature of crypto-asset markets but also susceptibility to external influences.

The example highlights the inherent vulnerabilities present in an unregulated market, where significant price swings can occur based on the actions and statements of influential companies or individuals.

Chart 61

Dogecoins price and volume on 3 April 2023

Price, Volume skyrocketed after logo change

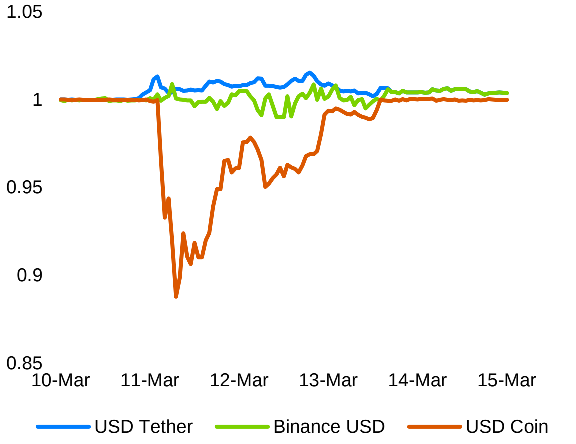


Note: Dogecoin price and trading volume in the top 5 exchanges in USD per minute.
Sources: Kaiko, ESMA

Total value locked (TVL) in **decentralised finance (DeFi)** protocols increased from around EUR 40bn in January to EUR 45bn in June 2023 (+12.5%) but lagged the overall crypto-asset market growth. In consequence, its share within the total crypto-assets market capitalisation fell by 1pp to 4%. The value lost to DeFi exploits declined below 0.5% of TVL (Chart 70).

[34] Kaiko: Quarterly Market Report: Q1 2023.

Chart 62
Stablecoins during the US banking turmoil
USD-Coin temporarily lost its peg



Note: Price of selected stablecoins between 10 and 15 March, in USD.
Sources: Kaiko, ESMA

The outstanding volumes of **exchange traded products** with crypto-assets as underlying increased in line with market valuations to a total of EUR 30bn globally. Notably, the US-based Grayscale investment trust alone represents about 80%and products available in Europe less than 15% of the total. Open interest in **Bitcoin futures** at regulated exchanges (CME and ICE) increased by about 15% during the first half of 2023.

Overall, heightened regulatory scrutiny and the failure of US crypto friendly banks have seemingly weighted on investors' ability and willingness to buy crypto-assets.

Tokenisation, i.e., the representation of financial or real assets on DLT, remains marginal in size. The outstanding notional amount of **tokenized bonds** listed on exchange increased slightly to around USD 800mn (Chart 69).

ESMA's **risk assessment framework** scores crypto-assets along six dimensions and allocates each a current risk level together with a short to medium-term risk outlook (Table 1). At the current juncture, **market-risk** (i.e. the risk of overall deteriorating crypto valuations), **internal-contagion risk** (i.e. the risk of a single platform or protocol failure affecting the wider crypto system) and **operational risk** (i.e. the risk of an operational malfunction at a platform, protocol or blockchain level to harm investors) are at the highest level. In the absence of adequate rules and supervision of operators, these risks have proven to materialise and are expected to remain high or even rise. External contagion risk to the wider financial system remains low, mainly due to the relatively small size of crypto-asset markets and limited interlinkages between crypto and traditional markets.

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

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

NB: 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. The ESMA risk assessment is based on quantitative indicators and analyst judgements.

Artificial intelligence

Since OpenAI's ChatGPT was released in November 2022, large language models (LLMs) and other **generative AI** technologies have witnessed an extraordinary surge in popularity. The growth of ChatGPT users alone has been remarkable, with 1 million users after just 5 days and, reaching 100 million by the end of January 2023.[35]

AI technology based on LLMs, including ChatGPT and several similar tools like Google Bard and Claude, seems well positioned to make its way into a wide range of financial market operations. These tools' ease of use and capabilities may significantly boost the use of **natural language processing** (NLP) and **natural language generation** (NLG) in several areas, enabling a more effective use of data and more efficient operations. In particular, they may enhance activities such as sentiment analysis in investment strategies, compliance, reporting, and consumer interaction.[36] Overall, generative AI may open up new possibilities for automation and

35 To put this into perspective, popular platforms like TikTok took 5 months and Instagram took 2 years to reach the 100-million mark.

36 In a recent TRV Risk Analysis article written shortly before the advent of ChatGPT, ESMA assessed how these and other activities in EU financial markets were already being reshaped by the use of NLP, NLG and other AI technologies. The article reviews the main risks associated with an increasing uptake of AI in securities markets.

enhanced decision-making processes in the industry.

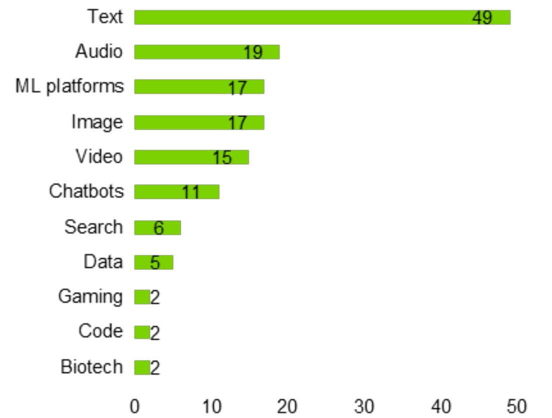
While it may bring about significant advancements, an increasingly pervasive use of generative AI in the financial system comes with risks. One area of concern is the transparency and quality of consumer interactions if generative AI is deployed in tools such as virtual assistants and robo-advisors. Issues may arise regarding the accuracy and reliability of the information provided, which can impact consumer trust.

Malicious actors may use generative AI to manipulate markets, such as by influencing market sentiment through social media posts to distort trading activity and prices. Malicious use of generative AI is also a potential concern for authorities' activities. For instance, interested parties may exploit these technologies to deceive or manipulate consumer complaints or consultation responses, undermining the integrity of regulatory processes.

Further risks may derive from the concentration of state-of-the-art LLMs and other AI models within few providers, such as Big Techs. Making substantial advances in the development of large AI models is a resource-intensive activity, which may produce barriers to entry. A growing uptake of AI in financial markets may result in increased reliance on tools developed by a few “big players”, which brings forth operational and dependency risks within the financial industry.[37]

At the same time, a spate of generative AI start-ups – including in Europe – potentially paves the way for a diversification of this technology’s available offer (Chart 63). The success of these companies is expected to rest on their ability to develop smaller, specialist AI models in a more agile fashion. A spread of quick-to-train, possibly less monitored models offered by smaller companies may entail challenges to ensure that appropriate safeguards are maintained. Chart 64 shows that text generation is currently the most commonplace application for generative AI start-ups operating in Europe.

Chart 63
European generative AI startups by field
Generative AI startups focus on text applications



Note: Number of European generative AI startups by field, January 2023. The figures are based on 60 startups domiciled in the EU and 63 startups domiciled in other European countries. "ML" = Machine Learning.
Sources: Sifted.eu, ESMA

As ChatGPT and generative AI become integrated into financial markets, closely monitoring and addressing potential risks and implications remains essential to ensure that market participants harness the benefits of these technologies while continuing to operate in a safe and trustworthy financial ecosystem.

Cyber risk

The EU financial sector continues to face a high level of cyber risk. A major concern is the potential escalation of Russia’s war of aggression in Ukraine leading to widespread cyberattacks against western targets such as financial entities. This escalation risk is present against a backdrop of ongoing cyber incidents, often motivated by private financial gain.

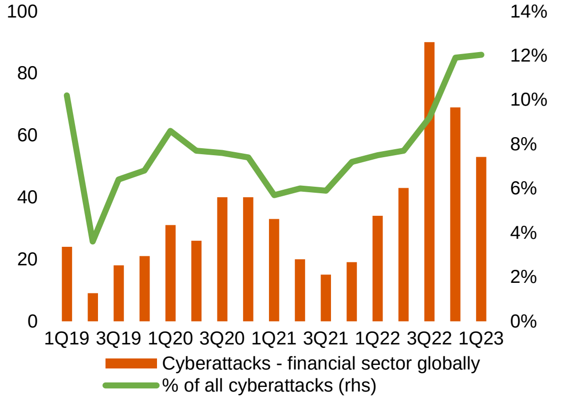
The increasingly international nature and digitalisation of financial sector activities and the cross-border nature of cyber threats mean that malicious incidents in one jurisdiction may affect companies and individuals in other regions and may indicate a general level of risk across countries. Publicly-acknowledged cyberattacks on financial sector entities globally spiked in 2H22 (Chart 64).

37 Concentration and interconnectedness risks due to the dominance of certain providers already apply to the broader digital financial services sector, as highlighted in the European Supervisory Authorities’ [Advice on Digital Finance](#).

Chart 64

Cyberattacks on financial sector

Surge in attacks in 2H22



Note: Cyberattacks on financial sector entities globally by quarter, publicly-acknowledged incidents. For details, see *Harry, C., & Gallagher, N. (2018). Classifying cyber events.* Journal of Information Warfare*, 17(3), 17-31*
Sources: University of Maryland CISSM Cyber Attacks Database, ESMA

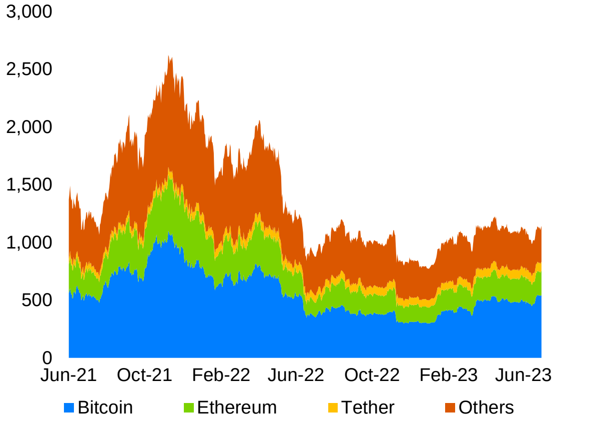
EU legislation on digital operational resilience (DORA) entered into force in January 2023. This will strengthen the security of digital financial operations and the ESAs are actively preparing for the new legislation. Their preparations also cover the deployment of an effective EU-level coordinated response in the event of a major cross-border cyber incident impacting the EU financial sector, in line with an ESRB recommendation published in 2022.

Key indicators

Chart 65

Crypto-asset market capitalisation

Crypto market up 40% YTD

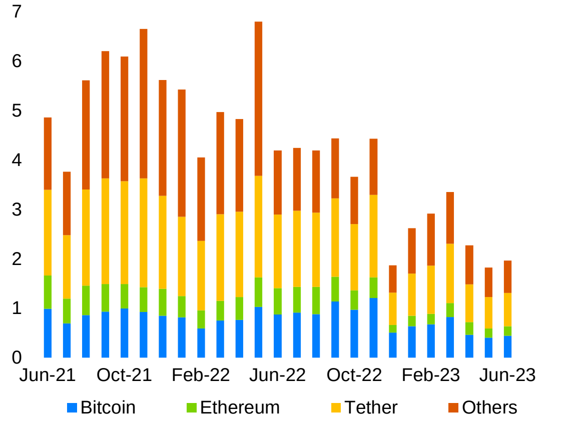


Note: Market capitalisation of Bitcoin, Ethereum, Tether and other crypto-assets, in EUR bn.
Sources: CoinMarketCap, ESMA.

Chart 66

Crypto-asset trading volume

Volumes remain low

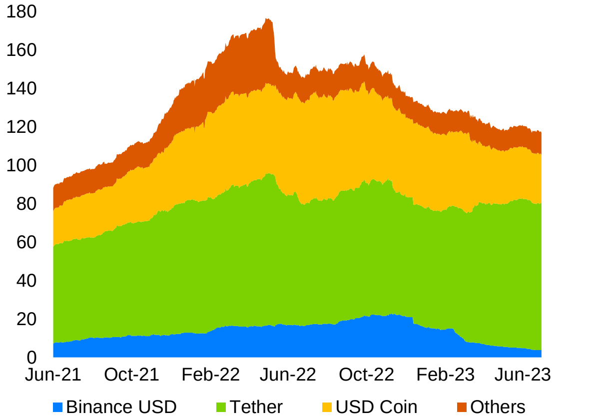


Note: Trading volumes of Bitcoin, Ethereum, Tether and other crypto-assets, in EUR tn.
Sources: CoinMarketCap, ESMA.

Chart 67

Stablecoin market capitalisation

Asset outflows continue

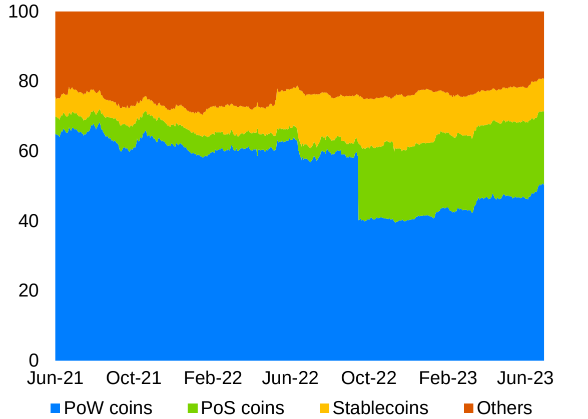


Note: Market capitalisation of Binance USD, Tether, USD Coin and other stablecoins, in EUR bn.
Sources: CoinMarketCap, ESMA.

Chart 68

Crypto asset consensus mechanisms

Proof-of-work remains dominant

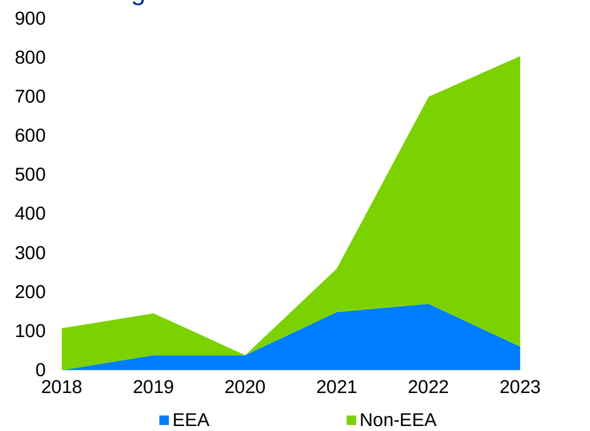


Note: Market capitalisation of crypto-assets by consensus mechanism, as % of the total. PoW=Proof-of-Work, PoS=Proof-of-Stake. Stablecoins only include Binance USD, Tether and USD Coin.
Sources: CoinMarketCap, ESMA.

Chart 69

Tokenised bonds

Outstanding notional on the rise

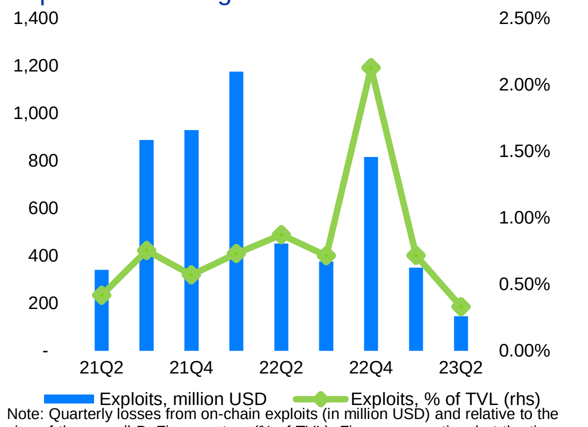


Note: Oustanding nominal amounts of publicly traded DLT bonds split by issuer domicile, in million USD.
Sources: Refinitiv, ESMA.

Chart 70

DeFi exploits

Exploits remain significant



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)22	first half (quarter) of 2022
1Y-MA	1-year moving average
2H(Q)22	second half (quarter) of 2022
ABS	asset-backed securities
AI	artificial intelligence
AIF	alternative Investment Fund
AuM	assets under management
BTC	bitcoin
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
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
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
PoS	proof of stake
PoW	proof of work
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
WAM	weighted average maturity
YTD	year to date

Currencies and countries abbreviated in accordance with ISO standards.