European Securities and Markets Authority

TRV Risk Monitor

ESMA Report on Trends, Risks and Vulnerabilities

No. 2, 2022

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European Securities and Markets Authority
(ESMA)
Risk Analysis and Economics Department
201-203 rue de Bercy
75012 Paris
FRANCE
risk.analysis@esma.europa.eu

Contents

Executive summary

Risk summary and outlook: The Russian military aggression against Ukraine, its political and economic effects, and increased inflation profoundly affected the risk environment of EU financial markets. Recoveries in EU financial markets faltered, volatility increased and market corrections grew more likely. The overall risk to ESMA's remit thus remains at its highest level. Contagion and operational risks are now considered very high, like liquidity and market risks. Credit risk stays high but is now expected to rise. Risks remain very high in securities markets and for asset management. Risks to infrastructures and to consumers both remain high, though now with a worsening outlook, while environmental risks remain elevated. Going forward, the confluence of risk sources continues to provide a highly fragile market environment, and investors should be prepared for further market corrections.

Market environment: Conditions deteriorated as the Russian invasion and sanctions drove a commodities supply shock, adding to existing pandemic-related inflation pressures, with variations across the EU. Monetary policy tightening gathered pace globally and markets increasingly anticipated the end of the decades-long period of low interest rates. Market volatility, bond yields and spreads jumped, equities valuations fell, and invasion-sensitive commodity values surged. Uncertainty remains very high, with monetary policy normalisation, the invasion and ongoing Chinese COVID-19 lockdowns.

Securities markets: Invasion-related supply disruptions drove up energy prices and volatility, impacting natural gas derivatives and highlighting liquidity risks for exposed counterparties. Rising energy costs and supply-side bottlenecks led to large equity price falls in 1H22, halting the recovery that started in 2020. Long-term interest rate concerns lowered price-to-earnings ratios and increased volatility. Inflation pressures and anticipated monetary policy hit valuations in fixed-income markets, where yields and spreads reached multi-year highs. Widening spreads signalled growing debt capacity concerns.

Asset management: The fund sector showed resilience, with limited impact from the invasion, but the deterioration in macroeconomic conditions amplified vulnerabilities and interest rate risk has grown with rising inflation expectations. Declining performance led to redemption requests in bond funds in 1H22. MMFs also experienced significant outflows in 1Q22 as investors moved away from fixed-income funds. Exiting the low-rate environment will be a medium-term challenge. American markets are showing a reallocation to inflation-protected assets, which has yet to be seen in the EU.

Consumers: Sentiment worsened with the uncertainty and geopolitical risks. Inflation could negatively impact many. Household savings fell from the record highs of the pandemic. Net retail investment flows into UCITS bond funds collapsed, in contrast to the strong inflows of 2021. Consumer complaints, which spiked in early 2021 during high levels of retail trading and technical problems for some equity investors, returned to more typical levels.

Infrastructures and services: Equity trading volumes' upward trend accelerated in 1H22, as investors adapted to rate changes and greater volatility. Central clearing volumes grew further, as margins collected by EU CCPs for interest rate and commodity derivatives rose with price volatility/rises in the underlying instruments. Margins collected for energy derivatives are concentrated in a few large clearing members who clear at only a few EU and non-EU CCPs. Credit rating agencies responded to the invasion with downgrades of Russian and Ukraine-exposed debt.

Market-based finance: Capital market financing was cautious in 1H22 amid elevated secondary market volatility and interest rate uncertainty. Equity primary markets slowed sharply after the record levels of 2021, with the lowest 1H issuance in the past 15 years recorded. Two thirds of the initial public offerings launched in 2021 were trading below issue price as of the end of 1H22. Corporate bond issuance was also quiet. Yet, issuance for other deal types remained strong, especially for securitised products.

Sustainable finance: The invasion presented a new and potentially major challenge to EU climate objectives as some countries turned to coal to compensate for lower Russian fossil fuel imports. It also had an asymmetric impact on ESG markets. EU ESG bond issuance slowed in 1H22 and EU ESG equity funds had net outflows in March 2022 for the first time in 2 years. However, funds with an ESG impact objective were largely spared and the pricing of long-term green bonds proved resilient.

Financial innovation: Crypto asset markets fell over 60 % in value in 1H22 from an all-time high in 2021, amid rising inflation and a deteriorating economic outlook, highlighting again the high risks of those assets (see the joint ESAs' warning). The sharp sell-off, compounded by the Terra stablecoin ecosystem collapse in May and the pause in consumer withdrawals by crypto lender Celsius in June, added to investor mistrust and confirmed the speculative nature of many business models in this sector.

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	↗
– Sovereign and private debt markets	↗
– Infrastructure disruptions	↗
– Other political and event risks	→

Securities markets

Risk status

Level	Outlook	Drivers
○	→	– Deep uncertainty from Russian invasion, risks of market volatility and market shifts. – Market re-evaluation risks from general and commodity-driven inflation, and rate rises. – Reduced growth increasing already high indebtedness from the pandemic, weakening public and private balance sheets. – COVID-19 residual uncertainty and ongoing impacts (e.g. from lockdowns in China). – Massive volatility and losses in crypto markets.

Asset management

Risk status

Level	Outlook	Drivers
○	→	– Sharp deterioration in mid-term economic outlook, supply-side and inflation pressures are set to reduce real portfolio returns. – Market volatility, liquidity or flows of exposed funds. – Risk appetite shift could drive flows away from riskier bond funds (corporate, emerging market).

Consumers

Risk status

Level	Outlook	Drivers
○	↗	– Increased market volatility and higher inflation increase short-term risks for consumers, especially losses from negative real returns as inflation undermines returns. – Risks of aggressive marketing, especially of higher-risk structured products and CAs. – Digitalisation and lack of consumer proficiency in social-media-driven trading and copy trading. – Poorly disclosed high costs; conflicts of interest related to payment-for-order flow.

Infrastructures and services

Risk status

Level	Outlook	Drivers
○	↗	– Ongoing heightened short-term operational risk of cyberattacks, especially from Russia. – High market volatility raises short-term risks of margin breaches and trade disruptions. – Ongoing significant operational risk to infrastructures generally, including exposure from fast-rising digitalisation and the use of cloud services in core production processes. – Increased operational burden on CSDs due to sanctions against Russia and from the high number of corrections needed for the application of cash penalties under the CSD regulation.

NB: 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 monitoring

Market environment

Russia's invasion of Ukraine and the sanctions introduced in response dramatically changed the market environment in early 2022.

Macroeconomic conditions were strongly affected by the economic disruption and higher uncertainty. Growth forecasts fell. By July, the International Monetary Fund (IMF) had cut its global real gross domestic product (GDP) growth estimate for 2022 to 3.2 %, and the European Commission had reduced its EU estimates to 2.7 % for 2022 and to 1.5 % for 2023.[1]

Inflation, already elevated in the context of the substantial supply–demand imbalances related to supply-chain issues and increased demand in the post-pandemic recovery, rose further as commodity prices, particularly energy, surged following the invasion (Textbox 1). Annual inflation reached a record high of 8.6 % in June in the euro area (EA), varying significantly across Member States from 6.1 % to 22 %.[2] In the United States the annual increase in consumer price indices hit a 40-year high in June (9.1 %).[3] Inflation forecasts also rose.

Monetary policy tightened in response. In the United States, the Federal Reserve System raised its benchmark rate by 25 basis points (bps) in March and 50 bps in May and 75 bps in June and July. In April, the European Central Bank (ECB) announced that net purchases under its asset purchase programme are to end in Q3. In June it announced a series of rate rises starting in July[4, 5]) and pledged to act against resurgent fragmentation risks in euro sovereign bond markets.[6] In July, the ECB raised its three key rates by 50 bps.[7] More widely, steps towards monetary policy normalisation by major central banks fed expectations that the long period of ultra-low interest rates was ending.

Textbox 1

Higher inflation and financial market risks

Inflation has risen sharply since mid-2021, as pent-up demand from the pandemic returned and some key supply chains faced challenges. The Russian invasion of Ukraine and the sanctions applied to Russia added to inflation pressures from resulting supply shocks in energy, food and metal commodities. Higher energy prices particularly contribute to inflation, widely increasing input and distribution costs.

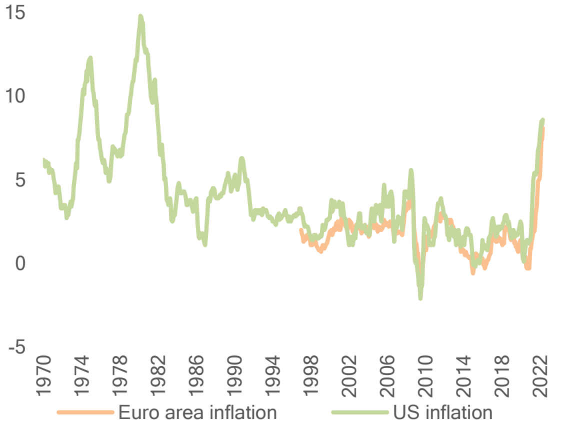
In terms of investment impacts, inflation directly lowers real returns. Assets with fixed returns, including most savings and bonds, are particularly hit. Impacts on equities depend on how profitability is affected by inflation. This varies depending on the business, how input costs are affected and their ability to pass higher costs on to clients. As such, inflation changes the relative attractiveness of assets, both across and within asset classes.

Inflation also has an indirect impact through its effects on actual and anticipated monetary policy, especially interest rate rises, to reduce demand and bring inflation back down. Higher interest rates increase returns on savings and raise borrowing and refinancing costs, reducing debt sustainability. Variable-rate loans face higher debt servicing costs, raising credit risk, including for securitisations backed by variable-rate loans.

Chart 1

Inflation in the EA and in the United States

Surge in inflation in the last 18 months



Note: Annual rate of change in price measures (Euro area: harmonised index of consumer prices from 1997, US: consumer price index non seasonally adjusted from 1970), monthly data in percent.
Sources: Eurostat, US Dept of Labor Statistics, ESMA

Higher inflation reduces the value of existing assets with fixed returns, such as (most) bonds. By reducing growth in the short term, higher rates lower profitability and typically reduce equity values. However, if a rate rise is expected to be effective in raising growth, it can also increase equity values.

The current increase in inflation and anticipated higher interest rates are occurring globally and come after many

1 IMF (2022), *World Economic Outlook Update – Gloomy and more uncertain*, Washington DC; European Commission (2022), *European Economic Forecast – Summer 2022*, Directorate-General for Economic and Financial Affairs, Publications Office of the European Union, Luxembourg.

2 Eurostat (2022), 'Euro area annual inflation up to 8.6 %', *Euro indicators*.

3 The U.S. Bureau of Labor Statistics Consumer Price Index.

4 ECB (2022), 'Combined monetary policy decisions and statement'.

5 ECB, 'Press release – Monetary policy decisions', 9 June 2022.

6 ECB, 'Press release – Statement after the ad hoc meeting of the ECB Governing Council', 15 June 2022.

7 ECB, 'Press release – Monetary policy decisions', 21 July 2022.

years of very low inflation (Chart 1) and low interest rates. Global asset allocation patterns (driving long-term equity market and real estate appreciation and high levels of indebtedness) have developed in a low-rate and low-inflation context over a long period of time. Given this, widespread asset reallocation and portfolio rebalancing is expected through a transition to higher inflation and higher rates.

The transition is likely to be volatile at points, as market participants make difficult judgements on when, to what extent and how to best reallocate assets, considering evolving inflation prospects, actual and anticipated rate increases and market developments. During the transition there is the possibility for major corrections to be made in response to unexpected developments. There are also risks of asset-return correlation reversals (e.g. simultaneous drops in bonds and equity values), rendering some portfolio hedges ineffective. Differing paces of monetary policy tightening globally will also add to exchange rate volatility.

At a more granular level, the increased volatility across markets and the potential for market corrections could have a wide range of possible effects. Examples include near-term liquidity risks, with potential for procyclical fire sales. Investment funds might also be driven to deploy liquidity management tools. Volatility could also drive CCP margins to increase rapidly, reducing liquidity for collateral and leading to margin breaches. Furthermore, extreme volatility could lead to disorderly trading and increased risks of settlement failures.

In addition, over time, increased credit risk from higher rates and tighter refinancing conditions could drive waves of rating downgrades, with potential for procyclical impacts where investment mandates lead to divestments. Real estate depreciation brought about by higher rates would also impact related financial assets, such as real estate funds.

Retail investors faced with inflation have reduced incentives to save (until rates increase). They may also not sufficiently appreciate their savings lose value in real terms through time, and therefore miss opportunities to invest in more appropriate assets. Conversely, some could be drawn into inappropriately risky investments that promise inflation-beating returns.

These risks and others related to inflation are discussed in more detail in the relevant sections below.

Asset values moved sharply (Chart 2). The jump in political and economic uncertainty, the deteriorating economic outlook and sudden supply shocks in key commodities drove large increases in volatility across markets (Chart 3).

Commodity prices rose dramatically. Energy, food and metal commodities were particularly affected, with sharp jumps occurring following the invasion and energy prices increasing throughout 1H22: Brent crude (+ 40 % to the end of April, + 55 % to the end of June), natural gas (+ 38 % to the end of April, + 102 % to the end of June), agricultural commodities (+ 28 % to the end of April, + 7 % to the end of June) and metals (+ 7 % to the end of April, – 9 % to the end of June).[8]

Overall, global financial markets remain in a state of **high uncertainty**. In addition to uncertainty on the development of the Russian invasion and on future monetary policy, uncertainty related to the pandemic also continues, with lockdowns in major Chinese cities impacting Chinese growth and adding to global supply chain pressures. New COVID-19 variants also have the potential to cause further disruption.

Government **debt levels** began to fall in 2021 as the economy recovered. EU gross government debt–GDP ratio dropped to 90 % in 2021, and in the Commission’s May forecast was expected to fall to 87 % in 2022, down from the 90 % forecast 6 months earlier, but still well above pre-COVID-19 levels.[9]

Net **investment flows** from EA-domiciled investors turned from net outflows in late 2021 and early 2022 to net inflows in February and March 2022 (Chart 7) before returning to net outflows in April. Net inflows reflected both net sales of non-EA equities by EA investors, and net purchases of EA debt securities by non-EA investors.

The profitability of **EU banks** remained stable in 2H21, well above 2020 levels, with continuing low loan loss provisions. EU banks’ exposures to Russia and Ukraine are also limited, though profitability is vulnerable to second-round, including macro, effects of the Russian invasion.[10] The picture is similar for **EU insurers**, where macroeconomic risks are also considered significant.[11]

Based on these major developments and a much more uncertain environment, European securities markets are coming under **increased systemic stress**. This is clear from ESMA’s version of the ECB composite indicator of systemic stress (CISS) (Chart 6). In 1H22, the systemic stress indicator exceeded levels seen at the beginning of the pandemic, with significant growth in each of the equities, bonds and money market components, with the largest and most rapidly growing component being in bond markets.

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8 S&P Global’s GSCI agricultural and metal indices; ICE Endex, ‘Dutch TTF gas futures’; and US Energy Information Administration, ‘Europe brent spot price FOB’.

9 European Commission (2022), *European Economic Forecast – Spring 2022*, Directorate-General for Economic and Financial Affairs, Publications Office of the European Union, Luxembourg.

10 European Banking Authority (2021), ‘Risk Dashboard – Data as of Q4 2021’.

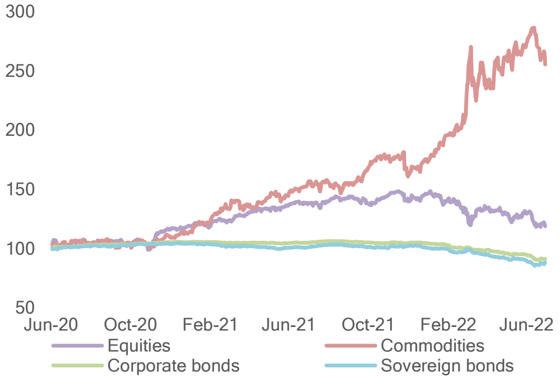
11 European Insurance and Occupational Pensions Authority (2022), ‘Risk Dashboard – April 2022’.

Key indicators

Chart 2

Market performance

Commodity prices grew dramatically

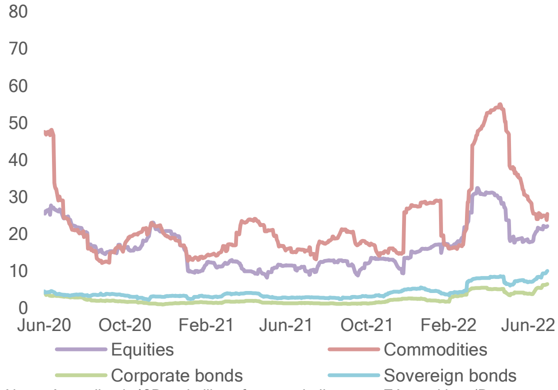


Note: Return indices on EA equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities). 01/04/2020=100.
Sources: Refinitiv Datastream, ESMA.

Chart 3

Market volatilities

Volatility jumps seen across assets

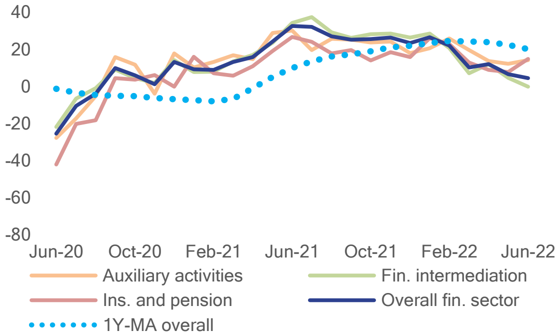


Note: Annualised 40D volatility of return indices on EA equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities), in %.
Sources: Refinitiv Datastream, ESMA.

Chart 4

Market confidence

Confidence drops after Russian invasion

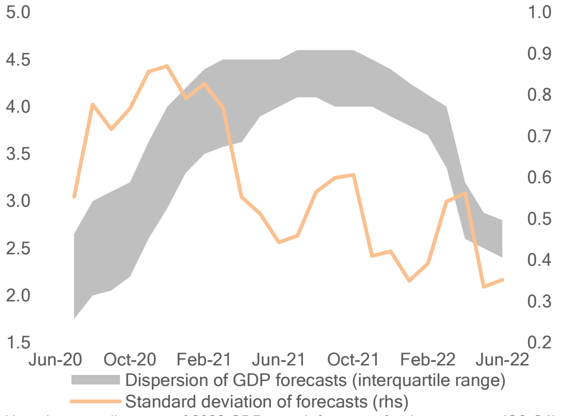


Note: European Commission survey of EU27 financial services sector and subsectors (NACE Rev.2 64, 65, 66). Confidence indicators are averages of the net balance of responses to questions on development of the business situation over the past three months, evolution of demand over the past three months and expectation of demand over the next three months, in % of answers received. Fin.=financial. Ins.=insurance.
Sources: European Commission, ESMA.

Chart 5

GDP growth forecasts

Lower growth anticipated for 2022

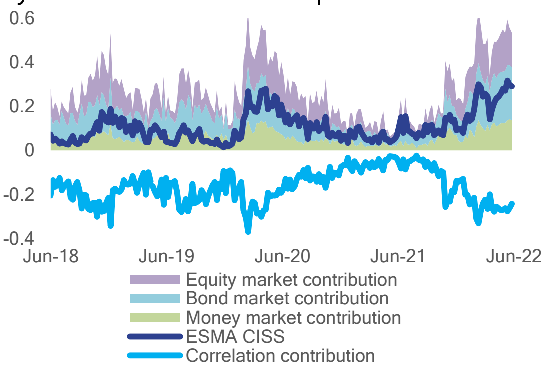


Note: Interquartile range of 2022 GDP growth forecasts for the euro area (Q3-Q1), in % by vintage month and standard deviation of forecasts, in %.
Sources: Refinitiv EIKON, ESMA.

Chart 6

ESMA systemic stress indicator

Systemic stress indicator up in 1H22

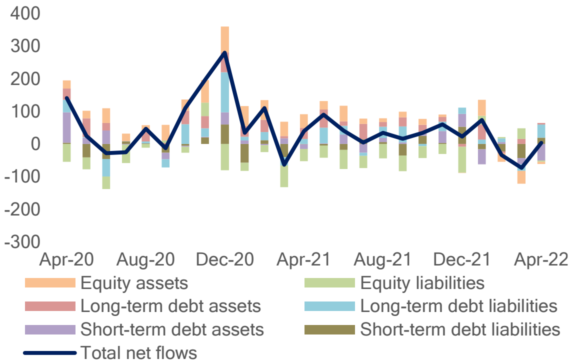


Note: ESMA version of the ECB-CISS indicator measuring systemic stress in securities markets. It focuses on three financial market segments: equity, bond and money markets, aggregated through standard portfolio theory. It is based on securities market indicators such as volatilities and risk spreads.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

Chart 7

Portfolio investment flows from and to the EA

Net flows into EA in 1H22



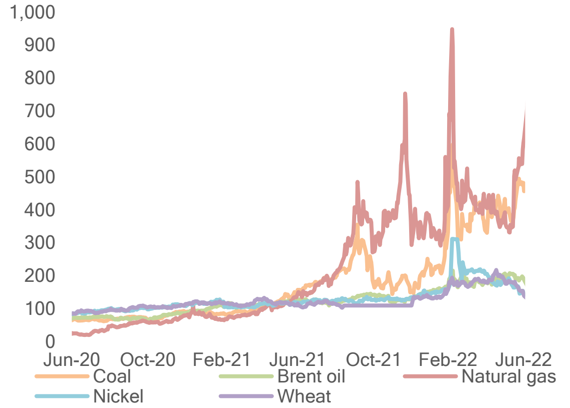
Note: Balance of Payments statistics, financial accounts, portfolio investments by asset class, EUR bn, Assets=net purchases (net sales) of non-EA securities by EA investors. Liabilities=net sales (net purchases) of EA securities by non-EA investors. Total net flows=net outflows (inflows) from (into)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

Securities markets

Commodities: volatility increased substantially

After experiencing steep price movements in 2H21, **commodity markets** stayed volatile in 1H22 and were characterised by heightened pressure on energy prices linked to supply-side uncertainty, strong demand and sanctions following the Russian invasion of Ukraine. Given the key importance of both countries as energy and commodity exporters (natural gas, oil, wheat, corn, etc.) a wide range of commodities have been affected by the invasion.

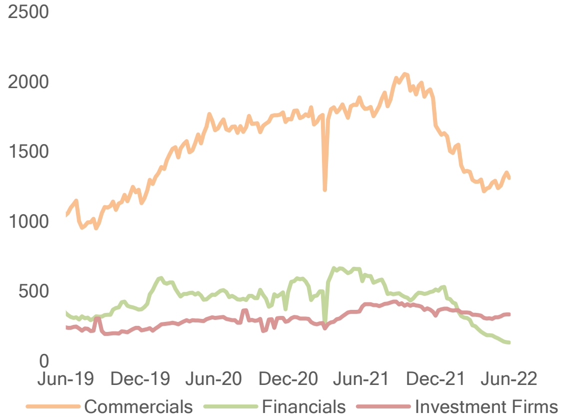
Chart 8
Energy commodity prices
High volatility of natural gas and coal prices



Note: Prices of natural gas (NYMEX Dutch TTF Natural Gas Calendar Month), coal (ICE Coal Rotterdam Continuous trading), crude oil (Brent 1M future), nickel (LME 3M), Wheat; rebased with 100 = Average price during 2019-2021.
Sources: Refinitiv, ESMA.

The price of **natural gas**, the product most affected by the Russian aggression (Chart 8), saw peaks in March (nine times its 3-year average) and at the end of June amid renewed supply concerns (six times its 3-year average). The soaring price of gas also affected commodity derivatives markets, particularly Dutch title transfer facility (TTF) gas futures, which in recent years have developed into the main benchmark for European gas markets. Trading volumes in TTF futures rose to all-time highs in March. The March volatility jump resulted in higher margin requirements by CCPs, leading to increased liquidity stress for market participants. Commercial and financial firms trading Dutch TTF futures significantly decreased their number of outstanding contracts, a process that began near the end of 2H21 for commercial firms (Chart 9). Notably, this process accelerated in 1H22 as demand for collateral increased. In parallel, commercial firms also reduced their hedging activity by offsetting their net short positions (Chart A.62 in the Statistical Annex). ESMA will continue to closely monitor these developments.

Chart 9
Dutch natural gas futures open interest
Commercials: reduction in outstanding contracts



Note: Open interests on Dutch Natural Gas Futures by commercial, financials traders (funds and other financial institutions) and investment firms, in mn. Spikes might reflect data quality issues.
Sources: ESMA Weekly Commodity Derivatives Positions Reporting, ESMA.

In addition, coal and oil prices exceeded their 3-year averages by 380 % and 90 % respectively and remained volatile. Global crude oil inventories diminished to below end-of-2020 levels.[12]

Since the start of 2022, copper, aluminium and **industrial metal values** have broadly declined and stabilised, following a period of high valuations in 2H21. Extreme price movements and large outstanding short positions in the London Metal Exchange nickel market led, on 8 March 2022, to the suspension of trading for a week and to trade cancellations.

Among **agricultural commodities**, the wheat price peaked (+ 83 % in May 2022 compared to the start of the year) before decreasing, towards the end of June, to the lowest levels since February 2022 (Chart 8). The prices of maize, barley and oilseeds also rose in 1H22, amid concerns over global food security.

12 IEA (2022), *Oil Market Report – April 2022*, Paris.

Strong equity price falls

Concerns multiplied and weighed on **equity prices** in 1H22, with higher energy costs and lower trade flows due to the Russian invasion, supply-side bottlenecks linked to the continued effects of the pandemic and tightening credit conditions for firms.[13] Recoveries in most equity indices, dating from the March 2020 market stress, came to a halt. There were falls, especially in the United States (– 20.5 % in 1H22) and in Europe (– 18.1 %), but also in China (– 8.3 %) (Chart 11). However, in early 2H22 (post-reporting period) positive American inflation news started a recovery across equity markets.

In Europe, sectors with higher energy intensity, such as consumer discretionary, industrials and technology, saw their prices fall more than in other sectors (respectively – 31 %, – 29 % and – 36 % year to date (YTD)). However, European **bank and insurance valuations** fell less than non-financials (respectively – 11 % and – 8 % YTD), despite rising funding costs potentially impacting future asset valuations (Chart 13).

The growing concerns about the future economic outlook were also visible in higher equity volatility in early March, which reached about half March 2020 levels (Chart 12). **PE ratios** also fell in 1H22 in the EU and the United States, though they stayed above 10-year historical averages (at 3 % and 9 % above respectively as of the end of May, Chart A.10 in the Statistical Annex). The declines partly reflect lower future earnings expectations, due to potential long-term effects of the pandemic and the impact of higher long-term interest rates.

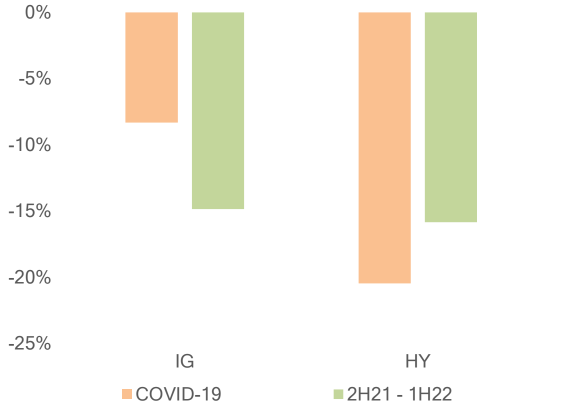
Fixed income: yields and spreads at multi-year highs

In 1H22, expectations of slower economic growth, higher inflation and a less accommodative interest rate environment were the key risk drivers in **fixed income markets**. In sovereign bond markets, inflationary pressures and central banks' policy actions drove marked jumps in nominal yields and spreads.

Despite a short-lived fall after the invasion, EU **sovereign bond yields** later increased in 1H22 to levels unseen since 2016 with significant news-flow-related volatility, in reaction to rising inflation and expected interest rate increases. Italian (+ 213 bps) and Greek yields (+ 230 bps) recorded the largest increases, while German ten-year bund yields (+ 150 bps) turned positive for the first time in three years (Chart 12). Rising rates fuelled market fragmentation concerns across EU sovereigns, as spreads to the bund widened.

Large sell-offs occurred on European **corporate bond markets** with similar price falls across rating categories. Investment grade (IG) bonds experienced a peak-to-trough fall of 15 % (August 2021 to May 2022), nearly twice that of the pandemic, and declined by 12 % in the year until June. HY bonds performed slightly worse (– 15 %) but their peak-to-trough losses were lower than during the pandemic (Chart 10).

Chart 10
Changes in euro corporate bonds total return indices
IG performs worse than during pandemic



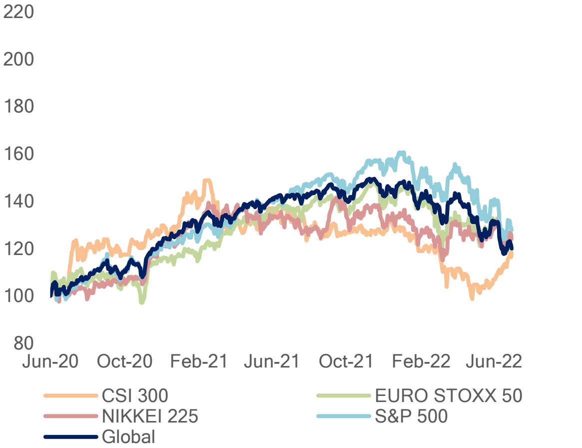
Note: Peak-to-trough declines of the BoAML Euro IG and HY corborate bond total return index, in %.
Sources: Refinitiv Datastream, ESMA.

The decline was accompanied by **deteriorating liquidity**, as reflected in the bid–ask spread surpassing the one-year moving average (1Y-MA) by 14 bps, and the YTD surge of the Amihud coefficient (+ 300 %). Credit spreads also widened (Chart 15), due to concerns that the slowdown could weigh on the firms' debt capacity. Significant upswings were seen in February with the invasion, and in May and June as rate hikes occurred in the United States and were announced for the EA. Rising rates and credit spreads could also be an issue for 'zombie' firms which could struggle to meet debt costs, raising the likelihood of default.

13 ECB, 'April 2022 euro area bank lending survey'

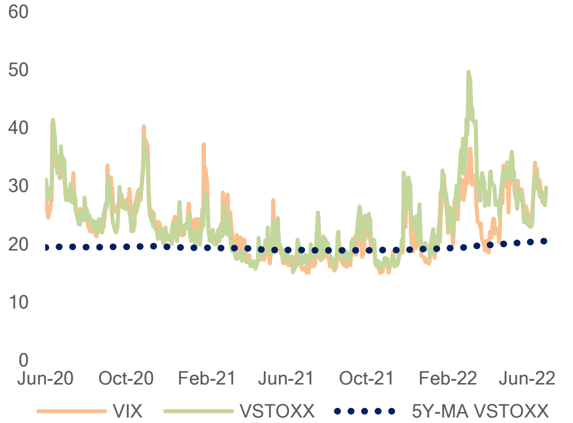
Key indicators

Chart 11
Regional equity market performance
Global decline in equity prices



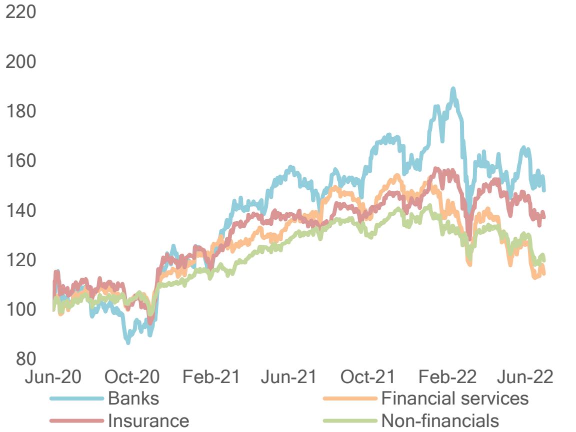
Note: Regional equity return indices. 01/06/2020=100.
Sources: Refinitiv Datastream, ESMA.

Chart 12
Equity market volatility indices
Important increase in volatility in March



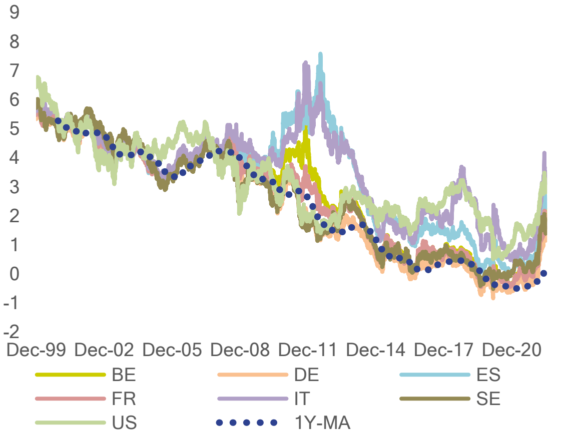
Note: Implied volatility of EURO STOXX 50 (VSTOXX) and S&P 500 (VIX), in %.
Sources: Refinitiv Datastream, ESMA.

Chart 13
European financials return indices
Valuations decrease by less than overall market



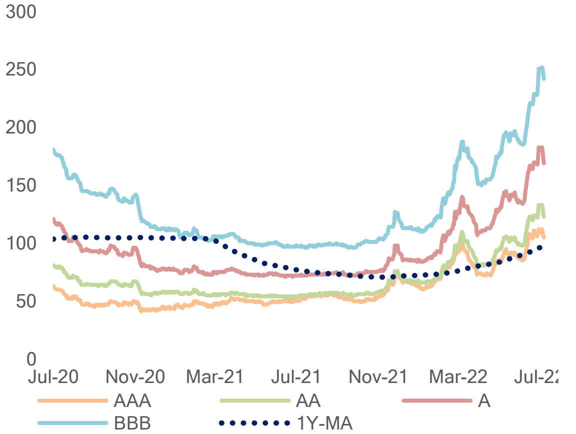
Note: STOXX Europe 600 sectoral return indices. 01/06/2020=100.
Sources: Refinitiv Datastream, ESMA.

Chart 14
EU sovereign bond yields
Sovereign yields reach multi-year high



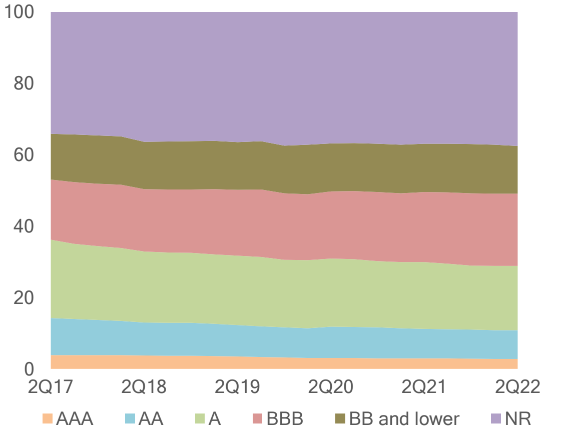
Note: Yields on 10Y sovereign bonds, selected countries, in %. 1Y-MA=one-year moving average of EA 10Y bond indices computed by Datastream.
Sources: Refinitiv Datastream, ESMA.

Chart 15
EA corporate bond spreads
Corporate spreads surge



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 16
Corporate bond ratings distribution
Decline in AAA- to A-rated outstanding bonds



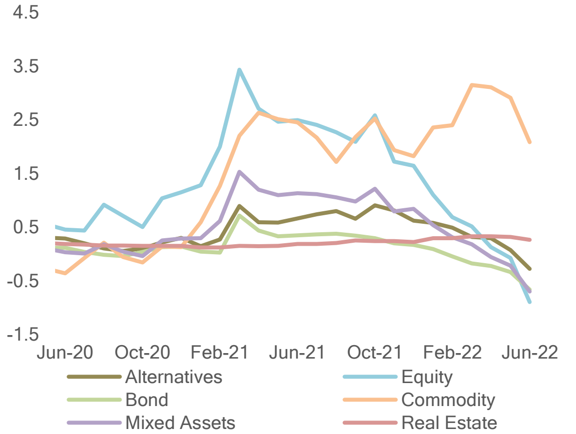
Note: Outstanding amount of corporate bonds in the EEA30 as of issuance date by rating category, in % of the total. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Asset management

Investors turn away from fixed-income funds

In 1H22, EA investment funds faced heightened volatility in securities markets given the increasingly uncertain outlook and the expected increase in interest rates. **Performance in most fund categories** fell from a 12-month average monthly performance of 1.6 % for equity funds in December 2021 to – 0.9 % in June 2022. In the meantime, the performance of bond funds turned negative (– 0.7 %). In contrast, commodity funds outperformed the sector in 1Q22, reflecting the surge in commodity prices following the Russian invasion of Ukraine and the sanctions against Russia, before slightly receding to 2.1 % at the end of the reporting period (Chart 17).

Chart 17
Fund performance
Performance fell except for commodity funds



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

Declining performance led to redemption requests with net **outflows** in 1H22 totalling 1.6 % of the net asset value (NAV) of the fund sector (Chart 21). Bond funds were particularly affected (– 4.8 % NAV), due to negative performance (– 0.7 %) and growing credit risk and interest risk. Commodity funds also had outflows (– 5.8 %), albeit from a low base and only in 2Q22, when their performance declined.

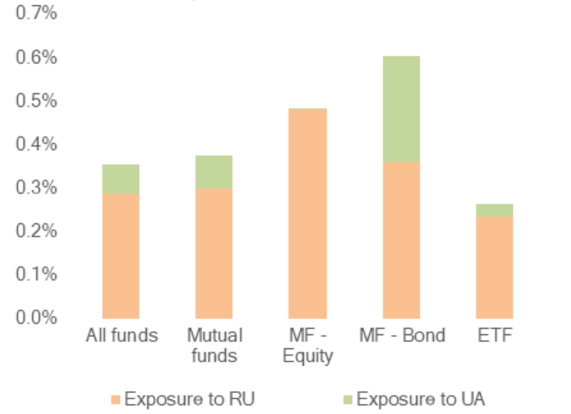
MMFs also experienced substantial outflows (– 9.2 % NAV). These are often used by institutional investors and corporates as a cash management tool, which can drive flows throughout the year. However, neither poor performance nor seasonality fully explain the outflows from **MMFs** during 1H22. Net outflows exceeded those of 1H20 with the onset of the COVID-19 pandemic (-4.6% NAV) but were less abrupt. MMFs denominated in all currencies experienced outflows, though USD MMFs experienced higher returns (1.1 % average monthly performance) than EUR denominated MMFs (– 0.1 %) over 1H22, due to foreign exchange effects. So, while MMFs can benefit from a flight to quality during uncertain market conditions, investors currently appear to be turning away from fixed-income funds in general. Outflows were partly driven by the expected increase in rates. MMFs were able to meet redemptions because their portfolios had high levels of liquid assets and low maturity.

Equity fund flows were also negative (– 0.9 %). In contrast, real estate funds (1.7 %) and mixed funds (1 %) recorded inflows.

Pressure to rebalance portfolios

Short-term risks in 1H22 related to the Russian invasion. Yet, direct impacts on investment funds were limited. Exposures to both Russian and Ukrainian counterparties were only EUR 50 bn (below 0.5 % of EU fund assets, Chart 18). Some fund exposures were higher, with 300 funds holding over 5 % of their portfolios in Russian and Ukrainian assets (total EUR 225 bn).

Chart 18
EU fund exposure to Russia and Ukraine
Limited direct exposure



Note: percentage of total net assets invested in Russian and Ukrainian assets by funds domiciled in the EU. Data as of 31/01/22.
Sources: Refinitiv, ESMA.

The large fall in the prices and liquidity of Russian instruments (– 33 % YTD for equities) led to **serious valuation issues for exposed funds**. In 1H22, 100 Russia-exposed EU funds temporarily suspended redemptions (EUR 15 bn in combined assets). However, funds with material Russian exposures before the invasion account for a very small share of the EU fund population (less than 0.1 % of the EU industry). A number of exchange-traded funds (ETFs) tracking Russian benchmarks also suspended share creation.

While direct impacts of the Russian invasion on funds, such as losses, were limited, existing risks were amplified by the invasion and the deteriorating macroeconomic outlook. Credit, valuation and liquidity risks remained elevated in the bond fund sector. Bond fund exposures to **credit risk** stayed elevated in 1H22, especially for HY funds (Chart 23). The credit quality of HY portfolios remained close to a five-year low, now having a rating between BB– and B+ on average. The likelihood of credit risk materialisation also increased with the deteriorating macroeconomic environment and rising interest rates, as seen in the higher credit spreads (Chart 15).

In contrast, corporate bond fund **liquidity risk** remained steady. In 1H22, based on asset quality and cash holdings, portfolio liquidity was stable.

Interest rate risk increased with rising inflation expectations. Currently, the main risk for funds is from a disorderly correction following a surge in interest rates. Portfolios with longer durations will see their values fall as inflation drives rates up (Chart 14, Textbox 1). However, adjustments are already being made in some funds. Bond fund portfolio durations fell in 1H22, remaining higher for government (7.6 years, down from 8.6 years) and IG bond funds (6.5 years, down from 7.3 years) than for HY funds (4.3 years, down from 4.8 years). Based on current duration, a 100 bps increase in yield could have an impact of – 7 % on bond fund NAV, about EUR 270 bn, which could lead to significant fund outflows.

In the MMF sector, the **weighted average maturity** (WAM) gives an indication of exposure to interest rate risk.[14] In 1H22 MMFs significantly reduced the WAM of their portfolios from 44 days to 30 days (a 3-year low), to lower interest rate risk and improve resilience to a rate rise (Textbox 2).

Textbox 2

MMF resilience to an interest rate rise

The stress test reported in 2021 confirmed the resilience of MMFs to an interest rate shock, with most funds reporting an impact of less than 0.2 % NAV. This would not challenge funds whose objective is to maintain a stable or constant NAV (i.e. low-volatility net asset value and constant net asset value). However, the shock was relatively mild, reflecting the concerns of a slower recovery that prevailed at that time. In 2022 the new scenario[15] was one with an upward trend in risk-free rates on account of a rise in inflation. The reporting will inform supervisors on fund exposure to an upward shock of 50 bps to the 1-year risk-free rate.

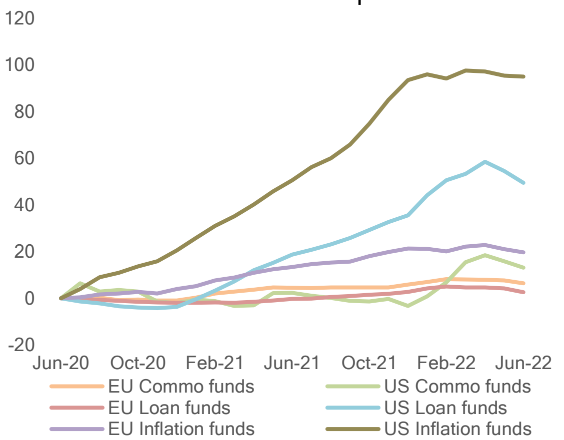
Exiting the low-rate environment

More than a decade of low inflation and low interest rates is coming to an abrupt end. This poses considerable **medium-term risks** for asset managers, with impacts on performance and fund flows likely to vary across asset classes. The US rate rise, for example, led to a significant reallocation from bond funds (– 4.7 % NAV in 1H22) to funds offering some protection against higher rates. To date, this contrasts with the EU. In 1H22, US cumulative flows into funds offering protection against higher inflation or rates, such as inflation-protected funds (EUR 1.5 bn), loan funds (EUR 14 bn) and commodity funds (EUR 16 bn), outpaced EU equivalents (Chart 19). Moreover, there were already significant inflows into American funds investing in government inflation-linked debt in 2021.[16]

Chart 19

Inflation protected assets

US funds – inflows to inflation protected assets



Note: EU and US funds cumulative net flows, EUR bn.
Sources: Refinitiv Lipper, ESMA.

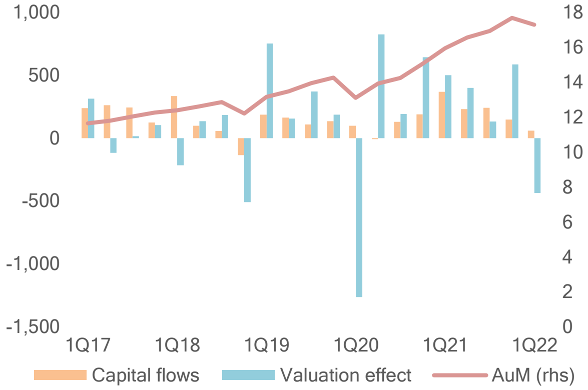
[14] The WAM is the remaining maturity of securities held in a portfolio, weighted by the value of each instrument.

[15] European Systemic Risk Board (2022), 'Adverse scenario for the European Securities and Markets Authority's money market fund stress testing guidelines in 2021'.

[16] The inflation impact on equity is discussed in detail in Textbox 1 in the 'Market environment' section.

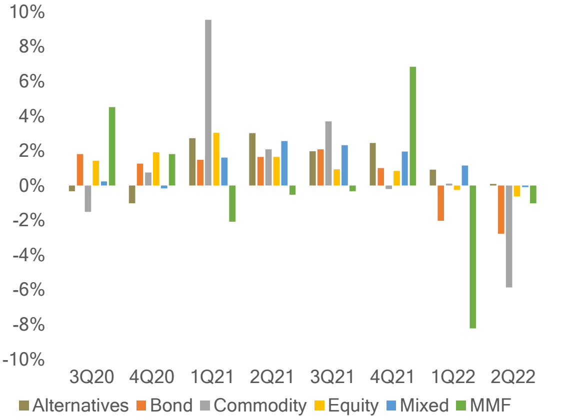
Key indicators

Chart 20
Assets under management (AuM) of EU funds
Valuation effects are negative



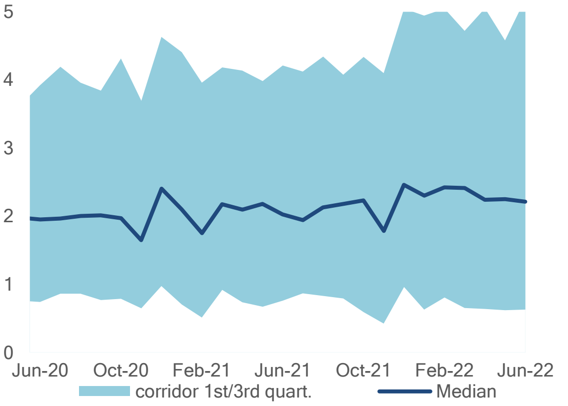
Note: Net valuation effect related to the AuM of EA investment funds, computed as the intraperiod change in AuM, net of flows received in the respective period. Capital flows and valuation effects in EUR bn. AuM expressed in EUR tn.
Sources: ECB, ESMA.

Chart 21
EU fund flows by fund type
Outflows across categories



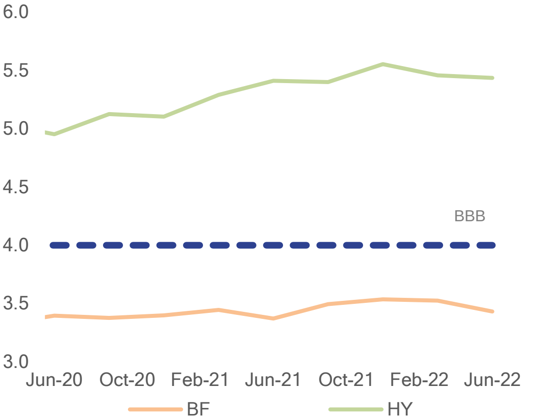
Note: EU27-domiciled funds' quarterly flows, in % of NAV.
Sources: Refinitiv Lipper, ESMA.

Chart 22
Corporate bond fund cash holdings
Cash holdings remain stable



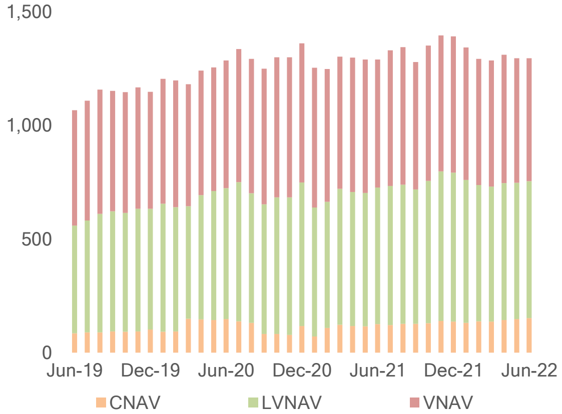
Note: Median and difference between the first and 3rd quartile of the value of cash held by EU27 corporate bond funds, in % of portfolio holdings (%). Short positions can have a negative value.
Sources: Refinitiv Lipper, ESMA.

Chart 23
Credit risk
Credit risk elevated in HY funds



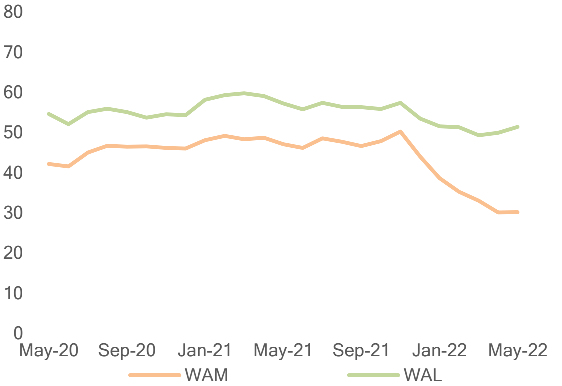
Note: Quarterly average credit quality (S&P ratings; 1= AAA; 4= BBB; 10 = D) for EU27-domiciled funds .
Sources: Refinitiv Lipper, ESMA.

Chart 24
MMF total assets
Total assets decline in 1H22



Note: MMF assets by type, in EUR bn.
Sources:Refinitiv Lipper, ESMA.

Chart 25
MMF maturity
WAM declines



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

Investor confidence drops

Growing uncertainty and risks related to the Russian invasion of Ukraine have had a substantial negative impact on consumer confidence and **investor sentiment**. Increasing volatility and substantial declines in asset prices have affected institutional investors as well as consumers. **Retail investor confidence** (Chart 30) strongly declined in 1Q22 and turned negative. Although sentiment later ameliorated in 2Q22, it remained negative. An even sharper decline can be observed for the future sentiment indicator, for both institutional and retail investors, suggesting weak expectations over the longer term. Investors are likely to be concerned by the potential future impact of the Russian invasion on the European economy and trade, and the uncertainty around future monetary and fiscal policy in this context.

The rise in **inflation** throughout 2H21 and its further surge during 1H22[17] is a major cause of uncertainty and a drag on investor sentiment. For retail investors, inflation can have significant effects on real returns on savings and investments in both the immediate and the long term (Chart 26).[18]

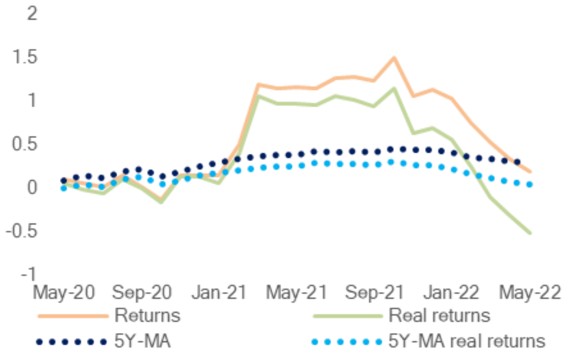
The annual household **saving rate** declined over 2021 to 16 % in 1Q22 from 19 % in the previous year (Chart 28). Growth in **household financial assets** slowed across assets. However, annualised growth remained positive for deposits, equity and investment fund shares at around 5 %, 15 % and 18 % respectively in 4Q21. Debt securities holdings declined (– 9 % in 4Q21) (Chart 29).

Negative returns for retail fixed income products

Retail investors may be unaware of inflation or not pay enough attention to its effects on their assets and purchasing power. Consumers can suffer from behavioural biases, such as money illusion or exponential growth bias,[19] that can lead to insufficient saving and investing. Moreover, when inflation is rising, the effects of insufficient saving on long-term wealth become more pronounced.[20]

In this inflationary context, the **performance of retail investments** continued to decline in 1H22, with the 1Y-MA of monthly gross nominal returns of a stylised household portfolio falling to 0.2 % from 1.1 % in December 2021. Taking inflation into account, the portfolio's real returns turned negative in 1H22, falling to – 0.5 % from + 0.7 % in December (Chart 26).

Chart 26
Portfolio returns
Real returns turned negative in 1H22



Note: One-year moving average of the monthly gross nominal and real returns of a stylised 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.

Fixed income accounts for the largest share in the fall in the portfolio value, reflecting the vulnerability of bond values to higher inflation and to expected rate rises. Within the hypothetical portfolio, the investments in bond securities and bond funds respectively had gross returns of – 4 % and – 0.3 %, down respectively from the – 2 % and + 0.2 % of 4Q21. This intensified concerns, especially in some Member States, on the exposure of retail investors to fixed income

17 ECB, 'Measuring inflation – the Harmonised Index of Consumer Prices (HICP)'.

18 For an overall view please see Textbox 1 in the 'Market environment' section of this publication.

19 Money illusion refers to a consumer perceiving their wealth as being higher than it is, due to not sufficiently appreciating the extent to which higher prices reduce purchasing power. Exponential growth bias is the tendency of individuals to underestimate the effect of compounding over time.

20 Better Finance, 'European savers are set to lose hundreds of billions of euros in purchasing power in 2022 alone', 2 May 2022.

products, which are more directly affected by rising inflation.[21]

This was also reflected in a sharp decline in **net retail investment flows into UCITS**. UCITS bond funds registered annual net outflows of EUR 35 bn in 2Q22 compared to net inflows of EUR 57 bn in 2Q21. Annual net flows into mixed and equity UCITS also declined. Net inflows stood at EUR 66 bn and EUR 91 bn respectively in 2Q22, down from EUR 159 bn and EUR 66 bn respectively in 2Q21 (Chart 31). This reflects the overall decrease in annual net performance, which turned negative, to – 10 % across asset classes on average.

Turning to UCITS **investment by management type**, passive and ETF equity UCITS had negative performance in 2Q22 (net returns of – 10 %, – 6 % and – 13 % respectively) but still outperformed active funds. This was very different from the previous year, in which net annual performances were similar across types and exceeded 40 % (Chart 32).

Investor protection: complaints return to trend

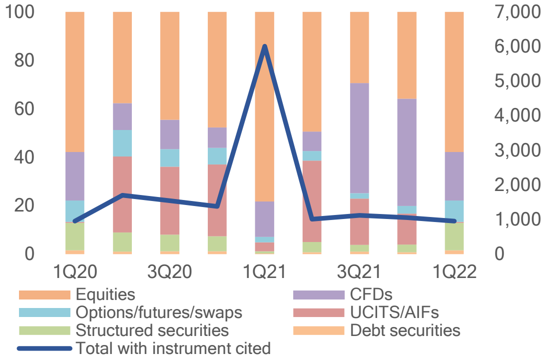
Among national competent authorities (NCAs) reporting quarterly data, **complaints** reported via firms and directly by consumers to NCAs totalled to around 4 500 in 1Q22, a little below the 2-year quarterly average. Complaint numbers are down from the high levels seen in 1Q21 and 2H20, which were associated with a large increase in retail trading seen during the early phase of the COVID-19 pandemic, amid turbulent trading conditions.

Interpreting patterns in complaints data requires an understanding of recent events and data limitations – such as significant time lags – and heterogeneity between countries. The spike in 1Q21, for example, was driven by technical problems related to very high volumes of trading in equities by retail investors via online brokers.

This can also be seen when looking at complaints by financial instrument. In 2H21 equity-related complaints fell as a share of total complaints (Chart 27), though there was a resurgence in such complaints in 1Q22, at more than half the total.

The relatively high levels of complaints relating to contracts for differences (CFDs) persisted, making up one fifth of the total. However, these results must be interpreted with caution, as the data do not include some major retail markets for CFDs (e.g. Netherlands, Poland) and only some complaints can be categorised by financial instrument.

Chart 27
Complaints data by financial instrument type
Complaints revert to pre-pandemic levels

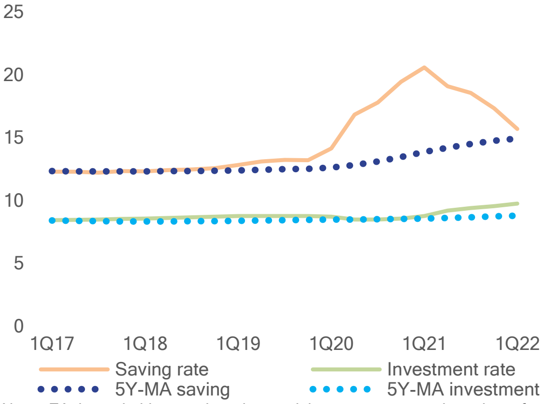


Note: Share of complaints from quarterly-reporting NCAs (n=14) received direct from consumers and via firms by type of financial instrument, where none of the instruments listed was reported. 'Total with instrument cited'=number of complaints via these reporting channels excluding those with instrument 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

[21] Securities and Markets Stakeholder Group (2022), 'Own initiative advice to ESMA – Recommendations in regard of the impact of inflation on investor protection'.

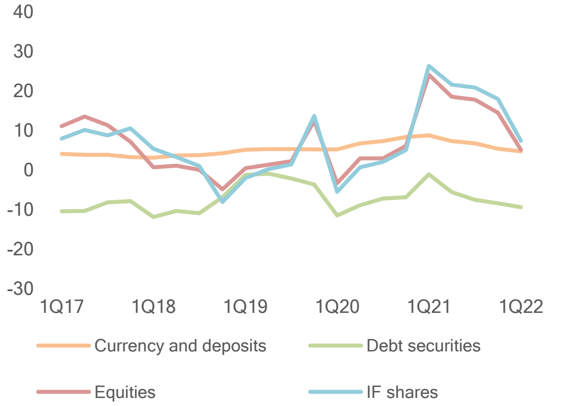
Key indicators

Chart 28
Household saving and investment rates
Saving rates declining



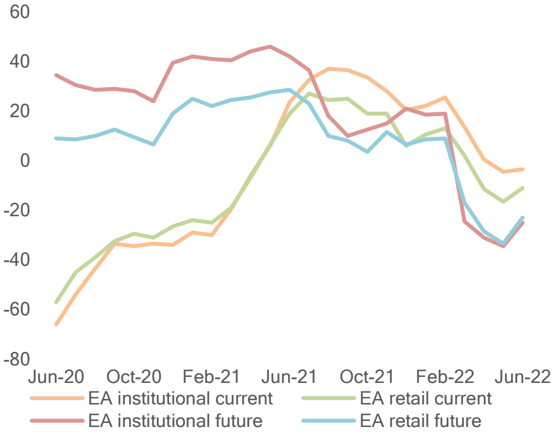
Note: EA household annual saving and investment rates, based on four-quarter cumulated transactions, in %. 5Y-MA saving=five-year moving average of the saving rate. 5Y-MA investment=five-year moving average of the investment rate.
Sources: ECB, ESMA.

Chart 29
Growth rate in financial assets
Lower growth rates, negative for debt securities



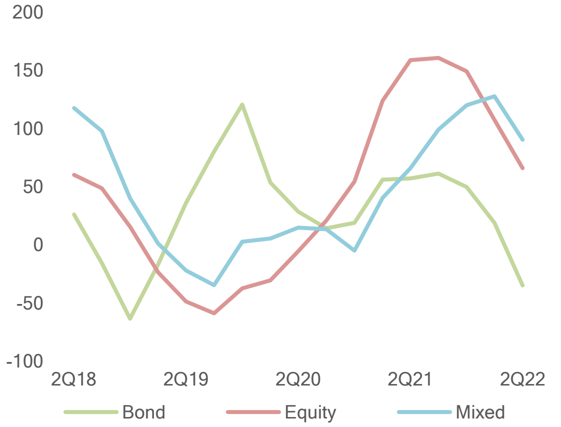
Note: Average annualised growth rates of financial asset classes held by EU27 households, in %. IF shares=investment fund shares. Ins.=insurance companies, Other assets=other accounts receivable/payable.
Sources: ECB, ESMA.

Chart 30
Investor sentiment
Negative future investor sentiment



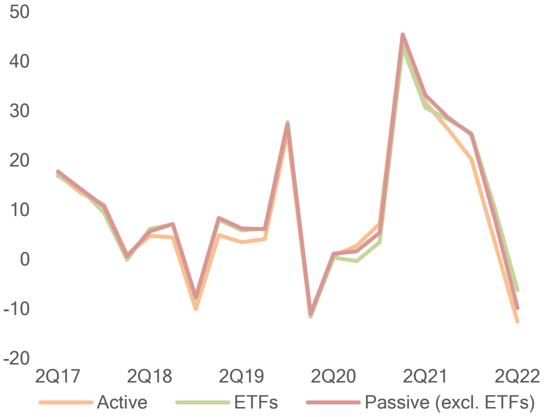
Note: Sentix Sentiment Indicators for the EA retail and institutional investors on a ten-year horizon. The zero benchmark is a risk-neutral position.
Sources: Refinitiv Datastream, ESMA.

Chart 31
Retail UCITS net flows by asset type
Overall decline in net flows



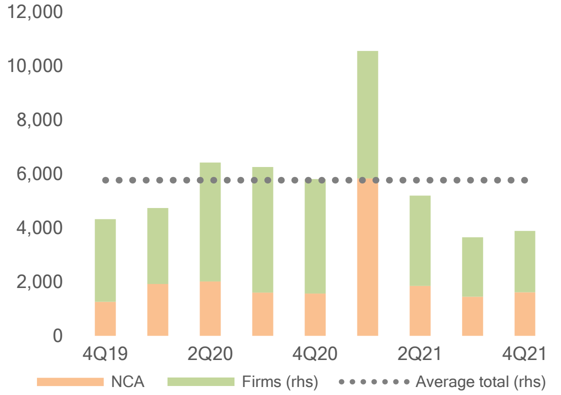
Note: EU27 UCITS annual net flows, retail investors only, at quarterly frequency by asset class, EUR bn.
Sources: Refinitiv Lipper, ESMA.

Chart 32
Equity UCITS net returns by management type
Strong decline in returns



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

Chart 33
Overall complaint volumes
Complaints dip after previous spike



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 4Q19 to 4Q21.
Sources: ESMA complaints database

Infrastructures and services

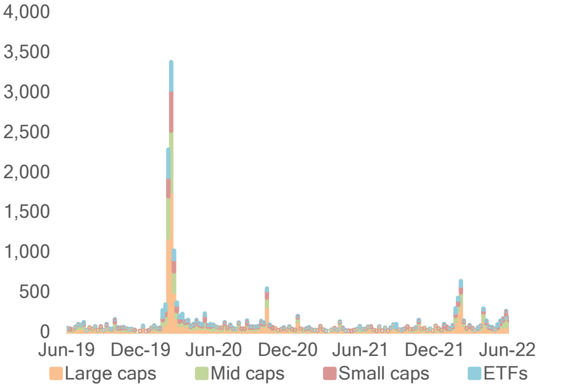
Trading venues: increased volumes in volatile markets

The first semester of 2022 saw an increase in **equity trading volumes** on European Economic Area (EEA) markets (+ 13 % compared to 2H21), connected to market volatility. Trading activity in March surpassed levels of the previous year, reaching EUR 1.8 tn (+ 18 % year over year). However, distribution by trading type remained stable, with only a slight decrease in lit trading (– 1 %) and an increase in over-the-counter (OTC) trading and dark pools (+ 0.5 and + 0.4 % respectively) in 1H22 (Chart 36).

After a surge during February and March, related to the increased volatility and the initial phase of the Russian invasion of Ukraine, **circuit breaker** events stabilised (Chart 34). Yet, put into context, the weekly number of events triggered in early March was 81 % lower than that reached during the March 2020 market stress.

On 2 May 2022 a flash crash, initiated by a market participant trading error, occurred on Nasdaq Stockholm AB, which caused a rapid price fall in the OMX 30 benchmark (– 7.9 %). It affected other major EU indices before losses were recovered. Circuit breaker events also increased moderately, in correlation with the flash crash.

Chart 34
EU circuit-breaker occurrences
Moderate increases in trading halts



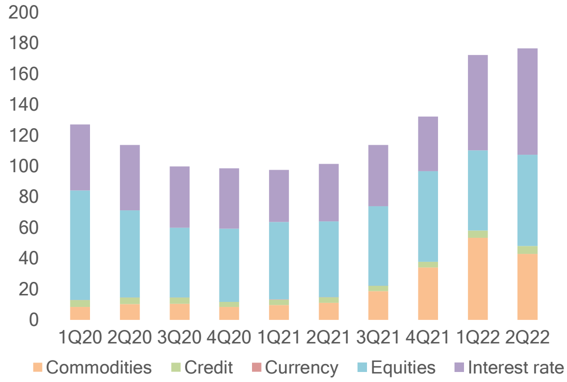
Note: Weekly number of circuit-breaker trigger events by type of financial instrument and by market cap registered on 29 EEA30 trading venues for all constituents of the STOXX Europe Large/Mid/Small 200 and a large sample of ETFs tracking these indices or some of their subindices.
Sources: Morningstar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

Clearing: high volumes and margin levels

The Russian invasion of Ukraine brought about unprecedented events to **commodity derivative markets**. As set out in the 'Securities markets' section, energy markets reached peaks and volatility well above March 2020 levels. Meanwhile at the London Metal Exchange, concentrated short positions and price increases led to trade cancellations and a 6-day suspension in nickel trading. In the EU, the clearing of energy derivatives is also highly concentrated with only a small number of big EU dealers clearing mostly at a few EU CCPs and a non-EU CCP. Client clearing is also concentrated within the big clearing members.

The **central clearing landscape** experienced, like trading venues, a large increase in volumes, starting in 4Q21, which translated into an increase in margins paid to CCPs (Chart 35). On commodity markets, the intense trading and heightened volatility triggered multi-year highs in margin calls, both for initial margins stemming from new or larger positions, and for variation margins, following the increase in volatility.

Chart 35
Initial margins collected by EU CCPs by asset class
Surge in interest rate and commodity margins



Note: Outstanding amounts of intital margin required and excess collateral received by EU27 CCPs for derivatives (CCP.A, CC&G data missing). in EUR bn.
Sources: TRs, ESMA.

The events illustrated the key role CCPs, concentrated positions and trading behaviour can have in the transmission of impacts from price changes to liquidity needs, in particular for non-financial counterparties, which are highly represented in the commodities space.[22]

Increasing margins raised concerns over commodities trading potentially migrating from exchange-traded derivative (ETD) to OTC to reduce costs. However, for non-financial corporates trading commodities in April (EUR 278.7 bn in volume), the ETD versus OTC trading split appeared to be within the normal range and consistent with pre-invasion patterns (65 % of the volume by notional amount was ETD and 68 % of the transactions were executed on exchange).

Margins paid to EU CCPs also increased for interest rate derivatives (Chart 35), driven by the heightened activity across interest rate products, linked to inflation and anticipated policy rate movements both inside and outside the EU.

CRAs: downgrades in Russian and Ukrainian debt

Credit rating agencies' (CRAs) **outlook for credit risk** was negatively affected by the Russian military aggression in February. Ratings drift for EEA-30 issued debt fell across debt types (Chart 41) around the time of the invasion, though recovered later in 1H22. There was a series of downgrades in late February and March affecting both corporates (Chart 40) and sovereigns. Structured finance ratings drift in the EEA-30 remained positive, albeit slightly lower, with upgrades in collateralised debt obligations, residential mortgage-backed security and asset-backed security still far outweighing downgrades in 1H22. More broadly, though, it was Russian and Ukrainian debt, and debt exposed to Russia and Ukraine, that was mainly affected by downgrades.

Among **corporate non-financial instrument ratings** in the EEA-30 with an outlook, there was an increase in negative outlooks (16 %, + 4 pp) since the end of 2021, while the proportion of those with a positive outlook remained unchanged (5 %). For corporate non-financials rated BBB – just within the IG category – the proportion with a negative outlook increased to 4 % (+ 2 pp).

By mid April 2022, CRAs had withdrawn their Russian ratings in response to the EU measures banning the rating of Russian debt and the provision of rating services to Russian clients.[23] In addition, sanctions have made it difficult for Russia to make sovereign coupon payments. As a result, a **Russian default** was repeatedly anticipated by CRAs and the market. Russia entered into technical default in early April but later avoided default by making coupon payments in May by drawing on foreign currency reserves that were not frozen. A 'failure to pay' event was later declared on 1 June, due to non-payment of some interest, which triggered payments on some credit default swaps.[24] On 27 June, a default was declared by Moody's Investors Service following non-payment of coupons, after the 30-day grace period, on two Eurobonds worth USD 100 m.[25] Market impacts were minimal given the default had been widely anticipated.

Fallen angels in the EEA-30 remained relatively few over 1H22, as in 2H21. Fallen angels were a major concern at the onset of the pandemic, in light of risks that corporates would struggle to service debts given pandemic-driven falls in business. This was generally avoided owing to far-reaching fiscal and regulatory support.

In 1H22 the share of fallen angels among IG ratings was 0.06 % for corporates (up slightly from 0.05 % in 2H21) and 0.04 % for structured finance (unchanged), while for sovereigns it remained at 0 %. Rising stars were less prevalent in 1H22 among HY ratings than in 2H21, particularly for sovereigns (0.3 % in 1H22, down from 8.1 % in 2H21). The change was more limited for corporates (1.2 % from 1.7 %) and structured finance (1.6 % from 1.9 %).

22 Put simply, high prices and volatile commodity market trading platforms impact CCP risk models, driving margin calls to clearing members of increasing size and/or frequency. Clearing members then make margin calls to trading members and clients.

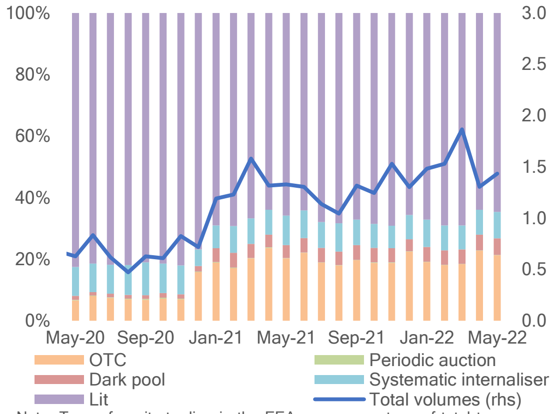
23 Council of the European Union (2022), Council Regulation (EU) 2022/428 of 15 March 2022 amending Regulation (EU) No 833/2014 concerning restrictive measures in view of Russia's actions destabilising the situation in Ukraine, *Official Journal of the European Union*, L 87, Publications Office of the European Union.

24 Stubbington, T. (2022), 'Russia's 'failure to pay' bond interest triggers credit default swaps', Financial Times.

25 Moody's Investors Service (2022), 'Government of Russia – Missed coupon payment constitutes a default'.

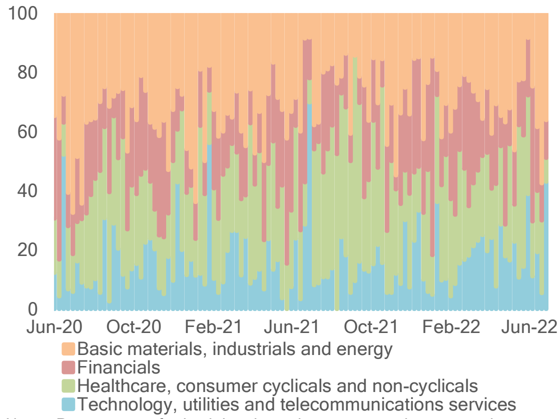
Key indicators

Chart 36
Equity trading volumes
Elevated volumes, increasing trend



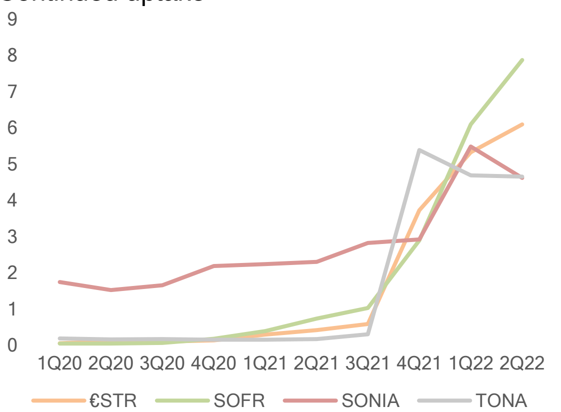
Note: Type of equity trading in the EEA as a percentage of total turnover. Total equity trading turnover in EUR trillion (rhs). Last available data point is May 2022. Poland data included from 2021 onwards.
Sources: FIRDS, FITRS, ESMA

Chart 37
EU circuit breaker trigger events by sector
Increasing share for financials, technology



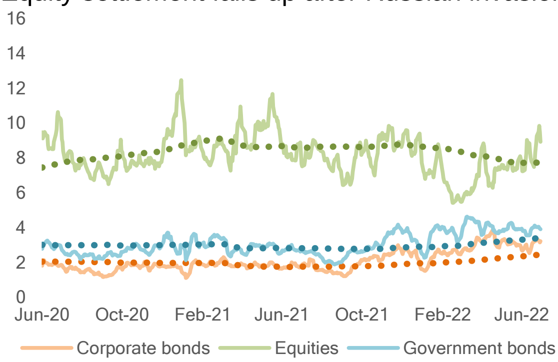
Note: Percentage of circuit-breaker trigger events by economic sector registered on 29 EEA30 trading venues for all constituents of the STOXX Europe Large/Mid/Small 200. Results displayed as weekly aggregates.
Sources: Morningstar Real-Time Data, ESMA.

Chart 38
Interest-rate derivatives linked to new risk-free rates
Continued uptake



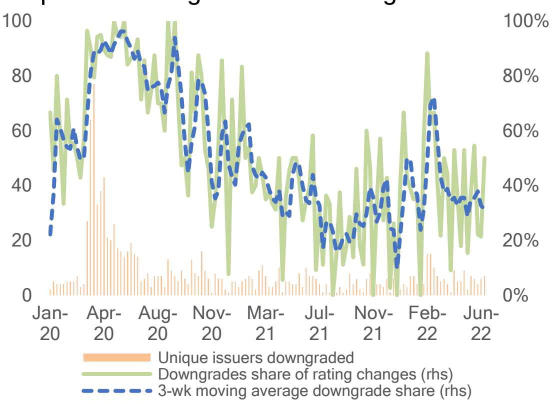
Note: Gross notional amount of IRD outstanding referencing new benchmarks, EUR tn.
Sources: TRs, ESMA

Chart 39
Settlement fails in EU CSDs
Equity settlement fails up after Russian invasion



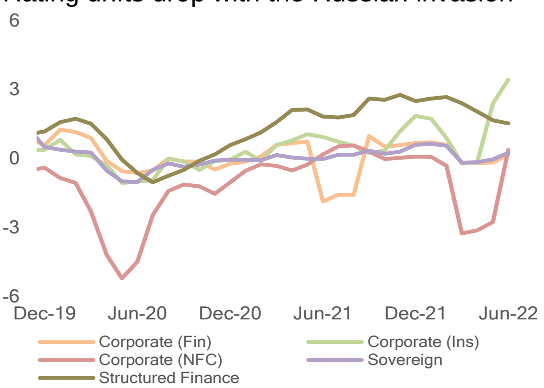
Note: Share of failed settlement instructions in the EEA30, in % of value, one-week moving averages. Missing data for some CSDs prior to mid-March 2020. Dotted lines represent one-year moving averages of the respective asset classes.

Chart 40
Corporate issuers downgrades
Corporate downgrades increasing in share



Note: Number of EEA30 corporate issuers with at least one bond downgraded, and ratio of dowgraded corporate issues over upgrades and downgrades (3 week moving average). Issuers with same reported parent treated as one issuer.
Sources: RADAR, ESMA.

Chart 41
Credit ratings drift
Rating drifts drop with the Russian invasion



Note: 3-month moving average of net rating changes in EEA30 outstanding ratings from all credit rating agencies, excluding CERVED and ICAP, by asset class, computed as the percentage of upgrades minus the percentage of downgrades. EEA30 ratings. Fin - Financials, Ins - Insurance, NFC - non-financials.
Sources: RADAR, ESMA.

Structural developments

Market-based finance

Challenges for market-based financing

European issuers were **cautious in their use of capital markets** during 1H22. This is likely linked to various factors, such as the recent rise in rates, market volatility, widening spreads and underperformance of newly issued deals in the secondary market. Higher interest rates raised financing costs for firms, reducing debt servicing capacity. Higher inflation could also slow corporate activities through higher input prices, especially for sectors that have yet to recover from the pandemic. In this context, annual growth in the market financing of EA non-financial corporations fell to 2 % in 1Q22 (Chart 44).

Equity issuance: subdued

After a record year for issuance volumes, European primary equity markets experienced a major slowdown in 1H22 amid volatile market conditions. Overall, total activity through IPOs and follow-on issuance in 1H22 amounted to EUR 32 bn, the lowest 1H issuance recorded in the past 15 years. This also marks a 54 % decline from the previous semester and a 70 % decline from the same period last year.

1Q22 was particularly challenging for already publicly listed firms. Total **follow-on issuance** by EEA-30 companies amounted to EUR 7 bn out of 185 deals (– 75 % and – 44 % compared to 1Q21 and 1Q20 respectively), the worst quarter since 2007. Issuance then picked up to average levels in 2Q22, to a total of EUR 20 bn out of 242 deals.

Market uncertainty also weighed on new entrants. **IPO** activity, strong in early 2022, slowed from March onwards. In 1H22 a total of 66 IPOs raised slightly less than EUR 4 bn in primary equity markets, compared to 183 deals (EUR 34 bn) in 1H21. The financial sector dominated the IPO market in terms of the number of deals (14 deals, EUR 1.1 bn) followed by the industrial and technology sectors (12 deals in each, EUR 0.3 bn and EUR 0.8bn). Moreover, substantial proceeds were also raised by energy listings (EUR 1.1 bn from 3 listings). By country, Italian and Norwegian firms recorded the largest proceeds (EUR 1 bn each), followed by Luxembourg (EUR 0.7 bn). Lower activity in IPO markets was the result of several firms postponing plans to go public amid lower investor appetite for new listings, given market volatility and recession fears. Moreover, there were concerns over IPO valuations based on the negative performance of offerings launched in the past 2 years (Textbox 3).

Textbox 3

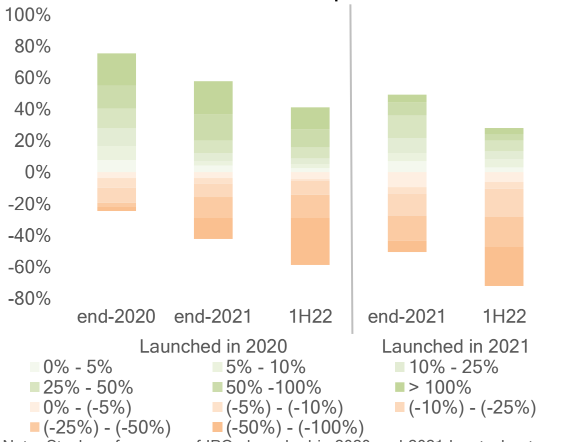
Two thirds of recent IPOs are below issue price

IPO activity in EU equity markets was strong from 2H20 to the end of 2021, with IPOs attracting investors willing to take on more risk amid low interest rates and economies recovering fast from the pandemic. However, post-IPO performance of these stocks has varied (Chart 42).

Chart 42

Stock returns since IPO launch

Most 2020/2021 IPOs underperform in 1H22



Note: Stock performance of IPOs launched in 2020 and 2021 by stock return buckets. Orange color indicates negative performance.
Sources: Refinitiv Eikon, ESMA.

About 42 % of IPOs launched in 2020 and 50 % of those launched in 2021 were trading below issuance price by December 2021. As of 1H22, the figures had grown to 59 % and 72 % respectively, as the environment deteriorated. Also, about 25 % of firms issuing an IPO in 2021 saw their stock value halved in a year. Increased competition from crowded equity markets and entry timing were contributing factors to poor end of 2021 performance. In 1H22, negative secondary equity market performance (see 'Securities market' section) drove the performance of those IPOs even lower.

Bond issuance: slower

Corporate bond issuance slowed in 1H22 from exceptionally high 2021 levels, but still remained at long-term averages due to elevated volumes in January. This also partly reflected reduced corporate funding needs. With borrowing costs rising rapidly, European corporates continued to exploit bond markets to obtain relatively cheap debt in time.[26] At the same time, short-term securities offered a shelter from the market turmoil associated with rate uncertainty.

Total **short-term debt** issuance in 1H22 reached EUR 807 bn, a level unseen since 1H15 and 12 % above the 5Y-MA (+ 27 % compared to 1H21 and + 9 % compared to 2H21). Long-term bond issuance in 1H22 amounted to EUR 687 bn (of which 62 %, EUR 392 bn, was rated), a 32 % decline compared to 1H21. The issuance was dominated by **IG**-rated securities, which accounted for 90 % on average (EUR 347 bn) of the total rated bonds. Activity in the **HY** segment decreased sharply, with EUR 44 bn raised in 1H22 (Chart 46), from EUR 121 bn in 1H21.

Issuance also reflected a **preference for shorter maturities**, with 42 % of the newly issued bonds in the 1 to 5-year maturity range. Average weighted maturity at issuance also fell, to 7 years from 10 years at the end of 2021 (Chart 43).

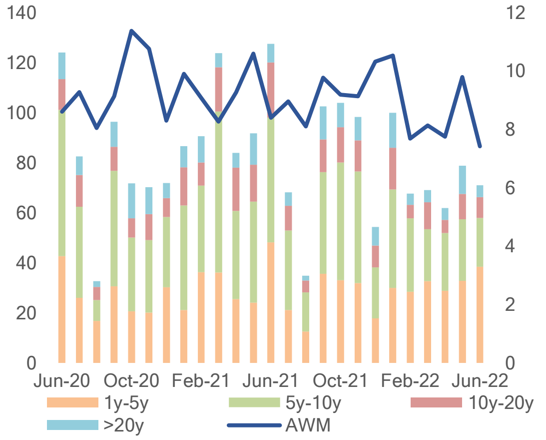
In a context of rising borrowing costs **debt sustainability remains a concern**, especially for HY corporates, given rising credit spreads, and for already cash-dependent firms.

Reliance on structured transactions

Similar to corporate bond issuance, collateralised loan obligation and securitisation activity also normalised. Issuance of **new collateralised loan obligations** in 1Q22 followed the late-2021 trend, staying relatively high by historical standards (EUR 9.8 bn, + 25 % compared to 1Q21) before slowing sharply in 2Q22 (EUR 4.4 bn). **Securitisation markets** ended 2021 at record levels, related to post-pandemic effects, with industry statistics estimating the total gross issuance for 4Q21 at around EUR 100 bn (+ 53 % from 4Q20). Issuance then continued more slowly in 1Q22, at EUR 64.3 bn (of which 52 % was placed), down 35.8 % from 4Q21, though up 32 % compared to 1Q21.[27]

Private equity saw a bounce in 2021 with record-high total investments of EUR 138 bn, of which 58 % were buyout investments (EUR 79 bn by 482 firms into 1 341 companies, up 28 % from 2020).[28] In a context of declining asset valuations, private markets could play a role in providing cash to investors. For example, some recently listed European companies that saw their stock value decline became targets for PE buyout firms in search of under-priced assets.[29]

Chart 43
Corporate bond issuance by maturity bucket
Preference for shorter maturities



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

SMEs: secondary market liquidity down

Secondary market activity for EEA small and medium-sized enterprises (SMEs) slightly reduced, with total trading volumes in SME shares reported by EEA-30 trading venues in 1H22 falling by 6 % relative to the end of 2021 (down 23 % from 1H21).[30] The share of SME turnover volumes declined to 1.5 % of total trading in shares (down from 2.7 % in March 2021). Similarly, trading volumes on SME growth markets (GMs) continued to fall, stabilising at a monthly average of around EUR 1.5 bn in 1H22, following the 1Q21 peak (EUR 4.5 bn).[31]

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26 Murugaboopathy, P., 'Global companies slow debt-raising as yields climb', Reuters, 16 February 2022.

27 Association for Financial Markets in Europe (2022), 'Data snapshot – AFME securitisation: Q1 2022'.

28 Invest Europe (2022), *Investing in Europe: Private Equity Activity 2021 – Statistics on fundraising, investments, & divestments*, Brussels.

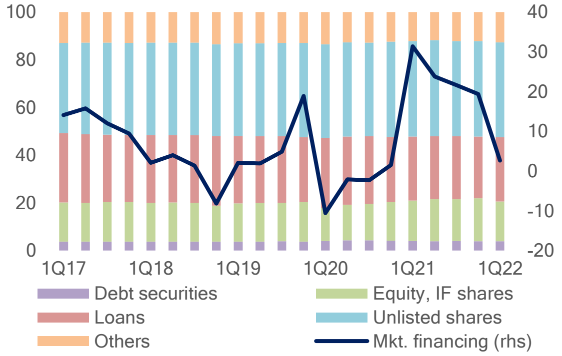
29 Gopinath, S., 'Private equity firms set sights on weak IPO stocks in Europe', Bloomberg, 27 April 2022.

30 The 2022 SME issuer classification is based on 2021 market capitalisation. Only issuers with a valid legal entity identifier whose market capitalisation meets the relevant MiFID II conditions are considered as SMEs. This implies an underestimation of 2022 SME issuer numbers and trading volumes.

31 MiFID II/MiFIR introduced the possibility of registering a MTF operator as an SME GM, if at least 50 % of issuers with shares available for trading on the relevant segment have a market capitalisation of less than EUR 200 m.

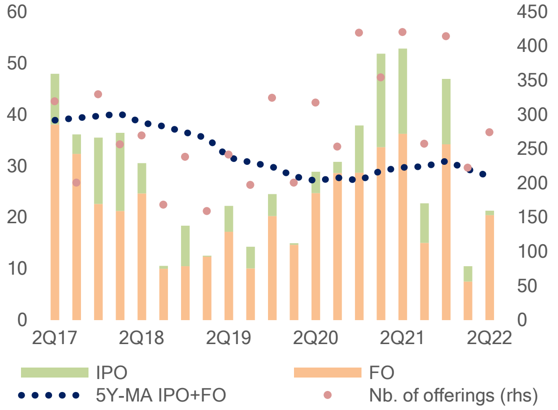
Key indicators

Chart 44
Market financing
Declining growth rate



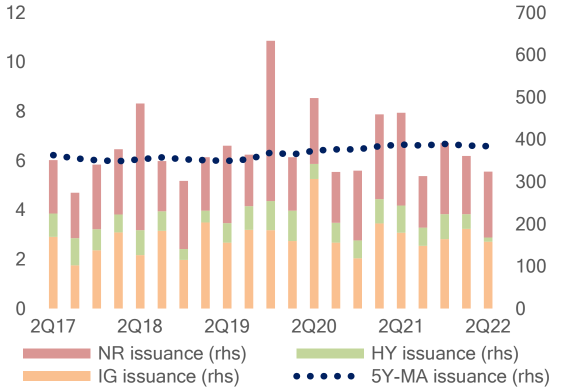
Note: Liabilities of EA non-financial corporations (NFC), by debt type as a share of total liabilities. Others include: financial derivatives and employee stock options; insurance, pensions and standardised guarantee schemes; trade credits and advances of NFC; other accounts receivable/payable. Mkt.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

Chart 45
Equity issuance
Significant slowdown in 1H22



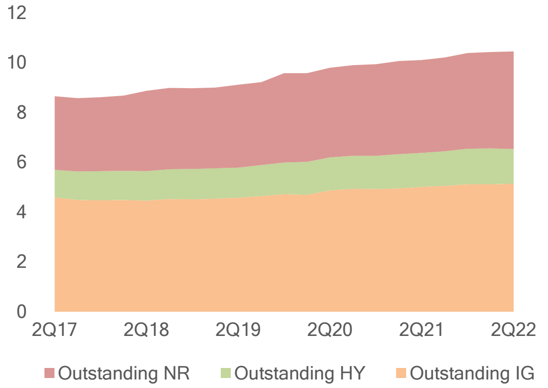
Note: Equity gross issuance in the EEA30 by type, EUR bn, and number of equity offerings. 5Y-MA = five-year moving average of the total value of equity offerings. FO = follow-on offering.
Sources: Refinitiv EIKON, ESMA.

Chart 46
Corporate bond issuance
Slower issuance



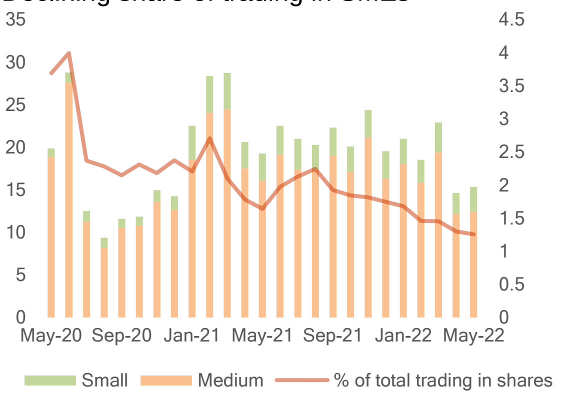
Note: Quarterly investment-grade (rating >= BBB-), high-yield (rating < BBB-) and non-rated corporate bond gross issuance in the EEA30 (rhs), EUR bn. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Chart 47
Corporate bond outstanding
Elevated outstanding debt levels



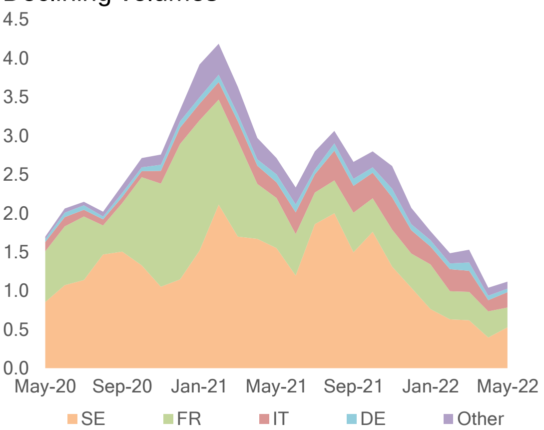
Note: Quarterly investment-grade (rating >= BBB-), high-yield (rating < BBB-) and non-rated outstanding amounts in the EEA30 (rhs), EUR tn. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Chart 48
SME trading volumes
Declining share of trading in SMEs



Note: Monthly trading volumes on EEA30 venues of SME shares, EUR bn (lhs), and % share of thtotal trading in shares (rhs). 'Small' =(0,20mn], 'Medium'=(20mn,200mn]. 2022 classification of SMEs is based on share market capitalisation in 2021.
Sources: FIRDS, FITRS, ESMA.

Chart 49
Trading volumes on SME GMs
Declining volumes



Note: SME trading volumes on GMs by segment market identifier code (MIC) domicile and month in EUR bn.
Sources: FIRDS, FITRS. ESMA.

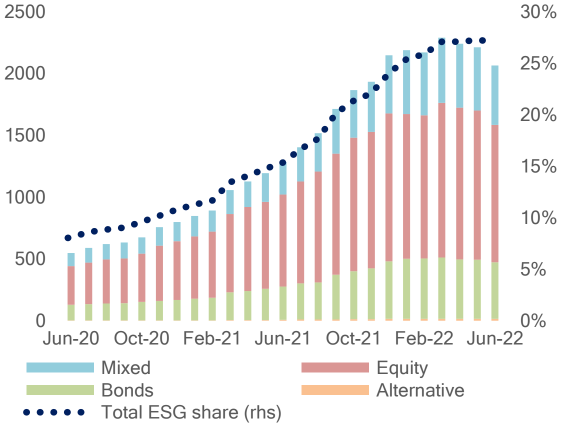
Sustainable finance

The **Russian invasion presented a new and potentially massive challenge for EU energy policy**, in particular for plans to move to gradually substituting fossil fuel sources with renewables. However, efforts to rapidly lower EU dependence on Russian energy[32] and gas price increases meant several Member States had to revert to more polluting sources (e.g. coal). In light of this, the Commission announced measures to reduce energy consumption and diversify energy supply, while raising the 2030 renewables target.[33] However, whether this can accelerate the energy transition in the long run will also depend on the ability of EU capital markets to efficiently allocate capital to high-impact projects and firms.

ESG investment resilience

The Russian invasion **also affected ESG markets**. In March 2022, EU ESG equity funds experienced net outflows (EUR 5 bn) for the first time in 2 years. ESG bond issuance volumes fell 29 % during the year until June, as compared with the same period in 2021.

Chart 50
EU ESG fund assets under management
ESG share stable despite AuM decline

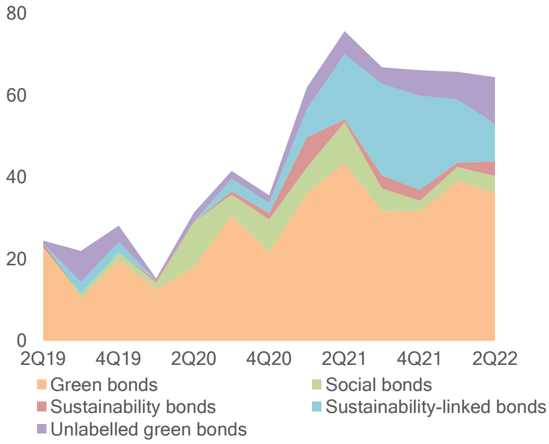


Note: AuM of EU-domiciled ESG funds by type of fund, EUR bn, and share of ESG fund AuM in total fund AuM (rhs), in %.
Sources: Morningstar, Refinitiv Lipper, ESMA.

Yet, some fundamental factors driving the rise of ESG investing remain. In particular, **investor preferences continued to shift towards sustainable investments**, with portfolio allocations increasingly tilted towards ESG investments. This can be seen in the continued growth in the share of assets managed by ESG funds, which averaged 27 % in 2Q22 (Chart 50).

Similarly, the **fall in ESG bond issuance** in 1H22 was mainly driven by sovereign and supranational issuance (– 49 % from 1H21). In comparison, corporate ESG bond issuance was more resilient (– 5 %), supported by the growing market for ESG instruments other than green and social-labelled bonds (Chart 51). This contrasts with a 32 % fall in EU corporate bond issuance, showing the resilience of the ESG bond segment.

Chart 51
Gross quarterly issuance of corporate ESG bonds
Sustainability-linked bonds supporting growth



Note: Gross issuance volumes of private sector issued ESG bonds issued by EEA-domiciled issuers, by ESG bond type, in EUR bn.
Sources: Refinitiv EIKON, CBI, ESMA

However, investor willingness to forego returns for ESG impact appears reduced. A **fall in the green risk premium** (or 'greenium') is visible for green bonds, and it has all but disappeared in some sectors (and even have reversed for financial sector issuers.)[34] Yet, the persistence of a greenium for bonds with maturity of over

[32] These efforts include a phasing out of Russian crude oil and petroleum product imports within 6–8 months. See European Commission, 'Russia's war on Ukraine: EU adopts sixth package of sanctions against Russia', 3 June 2022.

[33] See European Commission, 'REPowerEU: A plan to rapidly reduce dependence on Russian fossil fuels and fast forward the green transition', 18 May 2022.

[34] For further details about the greenium, see ESMA (2022), *ESMA Report on Trends, Risks and Vulnerabilities – Risk monitor,* No 1, Publications Office of the European Union, Luxembourg.

10 years shows the effect was concentrated on investors with a shorter investment horizon.

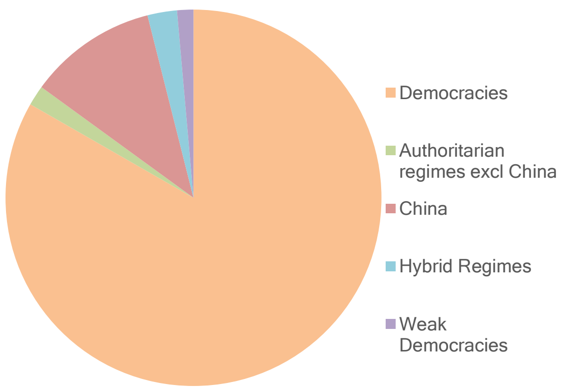
Anecdotal evidence also signals that **investors are paying more attention to the credibility and quality of the green commitments** made by issuers and product managers. This is corroborated by the asymmetric impact of the Russian invasion on ESG funds: products with sustainable investment as their objective (Article 9 products under the sustainable finance disclosure regulation (SFDR)) recorded net inflows of EUR 8.6 bn in 1Q22, while investors withdrew EUR 3.3 bn from funds only promoting sustainability characteristics (Article 8 products).[35] Lower ESG performance may have driven out more performance-focused investors.

Highlighting the 'S' of ESG

The **Russian invasion highlights the importance of the 'S' pillar in ESG investing**, and its clear link to 'E' pillar factors (through climate policy). While ESG fund exposures to Russian assets were widely documented,[36] the invasion raised questions on the compatibility of sustainable investment practices with the financing of non-democratic regimes or weak democracies. Evidence based on the Global State of Democracy Indices from the International Institute for Democracy and Electoral Assistance (IDEA).[37] for about 7 000 EU-domiciled equity funds suggests that, as of March 2022, ESG funds were generally less exposed to non-democratic regimes.[38] Exposures to high or mid-range performing democracies (hereafter 'democracies') constituted the bulk of portfolio exposures for both ESG and non-ESG equity funds, at 83.3 % and 79.3 % respectively.[39] These exposures increased by 1 pp since the end of 2021 for both types of funds.[40]

Among ESG funds, sustainable funds that incorporate ESG principles (via ESG integration or engagement) show highest average exposure to democratic countries (83.2 % in March 2022) followed by impact funds and environmental funds (c. 81 % for both). Funds with a sustainable investment objective, disclosing under Article 9 of SFDR, show higher exposures to democracies relative to those with sustainability characteristics disclosing under Article 8 of SFDR (respectively 84.1 % and 80.8 %).[41]

Chart 52
ESG funds exposure according to political regime
Elevated exposure to democracies



Note: Exposure of ESG equity funds domicilied in the EU to different types of political regimes, as of March 2022.
Sources: Morningstar, International IDEA, ESMA.

The invasion drew attention to ESG funds and sparked debate on the meaning and goals of responsible investing.[42] While long-term implications are unclear, an immediate effect was that **ESG investors started paying greater attention to the social impact** of investments.

35 Morningstar (2022), 'SFDR Article 8 and Article 9 funds: Q1 2022 in review'.

36 Marsh, A. and Schwartzkopff, F., 'ESG funds had $8.3 billion in Russia assets right before war', Bloomberg, 8 March 2022.

37 In 2020, the organisation identified 92 countries as 'authoritarian regime', 'hybrid regime' or 'weak democracy' and 73 high or mid-range performing democracies. For details on the methodology and the criteria, see International IDEA (2020), 'Methodology – The Global State of Democracy Indices'. The classification of countries was compared to the index of democracy provided by the Economist Intelligence Unit (EIU). The two analyses appear consistent: among the 92 countries considered as 'authoritarian regime', 'hybrid regime' or 'weak democracy' by the International IDEA, 89 are also classified as 'authoritarian regime', 'hybrid regime' or 'flawed democracy' by the EIU, while the three remaining countries are not analysed by EIU.

38 The portfolio exposure is based on the economic exposure of underlying companies (origin of profits, sales, etc.). For details, see Morningstar methodology documents (in particular 'Revenue exposure by region – Fund-level calculation methodology' and 'Morningstar global geographic segment methodology'). Note, however, that it does not assess the financing of non-democratic regimes, but exposure to these countries.

39 Even if the gap is smaller, the median exposure to democracies was higher for ESG funds (85.5 %) than for non-ESG funds (84.9 %).

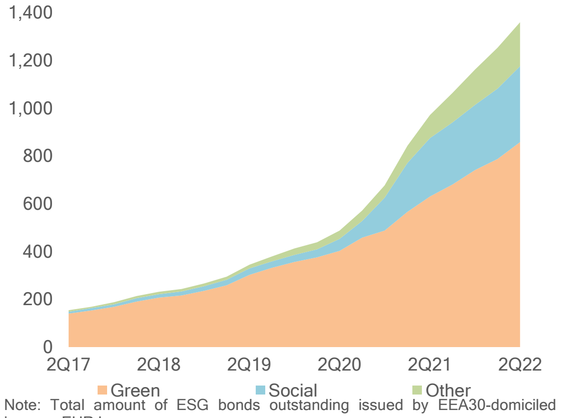
40 Increased exposure may also be the consequence of reallocation or valuation effects.

41 However, there are some differences when considering the median. As of March 2022, the median exposure to democracies was highest for impact funds, lowest for environmental funds and similar for funds disclosing under Article 8 and Article 9 of SFDR.

42 Moisson, E., 'ESG investors accused of 'failing' over Russia', Financial Times, 11 March 2022.

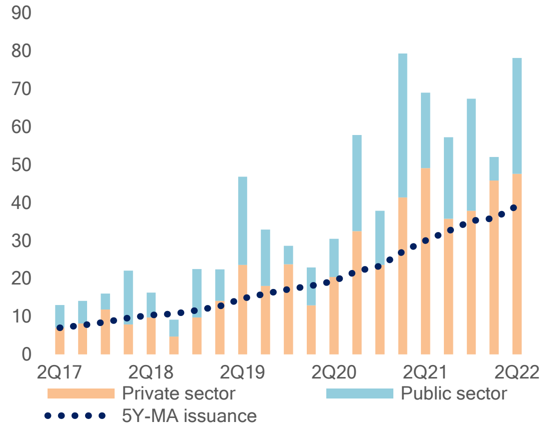
Key indicators

Chart 53
EU ESG bonds outstanding
Market size continued to increase



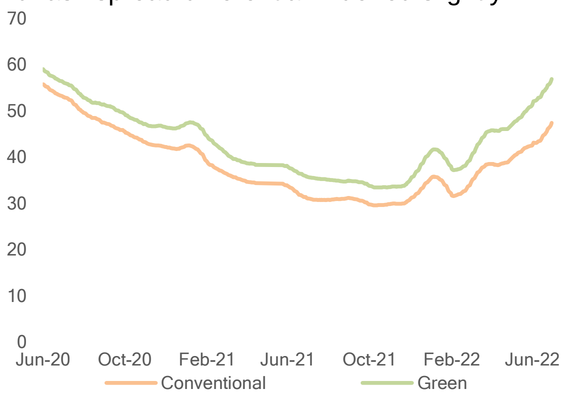
Note: Total amount of ESG bonds outstanding issued by EEA30-domiciled issuers, EUR bn.
Sources: Refinitiv EIKON, ESMA.

Chart 54
Green bond quarterly issuance
Corporate green bond issuance resilient



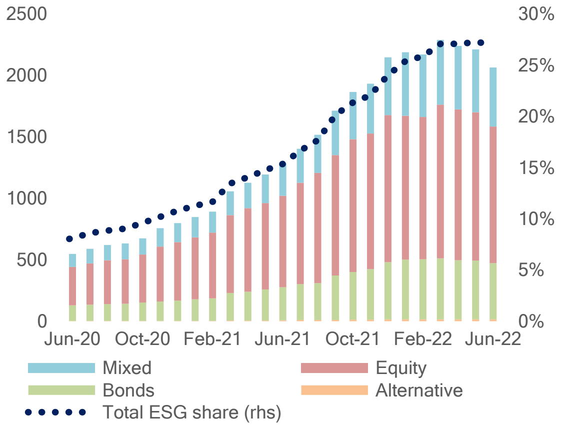
Note: Green bond gross issuance in the EEA30 by sector, EUR bn.
Sources: Refinitiv EIKON, ESMA.

Chart 55
Corporate green bond and conventional bond liquidity
Bid–ask spread differential widened slightly



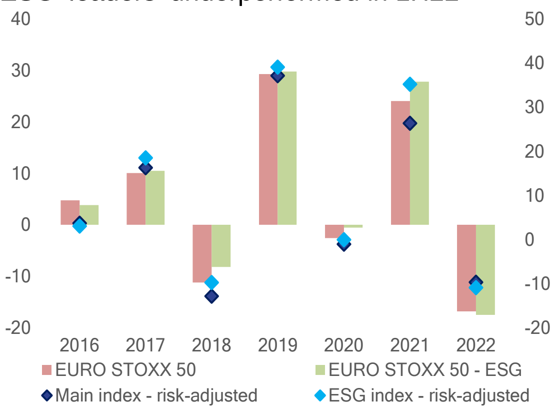
Note: One-month moving average of the bid-ask spread of green and conventional bonds from green bond issuers included in the Markit iBoxx EUR Corporate bond index, in bps.
Sources: IHS Markit, ESMA.

Chart 56
ESG fund assets
ESG fund assets declined, stable share



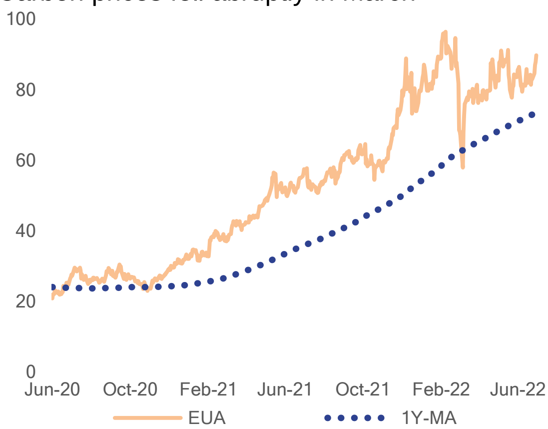
Note: AuM of EU-domiciled ESG funds by type of fund, EUR bn, and share of ESG fund AuM in total fund AuM (rhs), in %.
Sources: Morningstar, Refinitiv Lipper, ESMA.

Chart 57
ESG leaders index risk-adjusted returns
ESG 'leaders' underperformed in 1H22



Note: Annual returns of the EURO STOXX 50 and its ESG leaders subindex, in %. Risk-adjusted returns, on rhs, measured as Sharpe ratios. Current year data year-to-date.
Sources: Refinitiv Datastream, ESMA.

Chart 58
Emission allowance prices
Carbon prices fell abruptly in March



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

Financial innovation

Cryptoasset market collapses, again

The total **market capitalisation** of CAs fell over 60 % from an all-time high in November 2021 to below EUR 1.0 tn in June, amid rising interest rates and the global economic slowdown. The terraUSD (UST) collapse in May (see below) and the pausing of customer withdrawals by Celsius in June (Textbox 5) added to the shift in investor sentiment away from these assets, which sent bitcoin (BTC) price to an 18-month low.

The largest CA in market capitalisation terms remains BTC, with approximately 40 %, followed by ether (ETH) with approximately 15 % of the overall CA market (Chart 62).

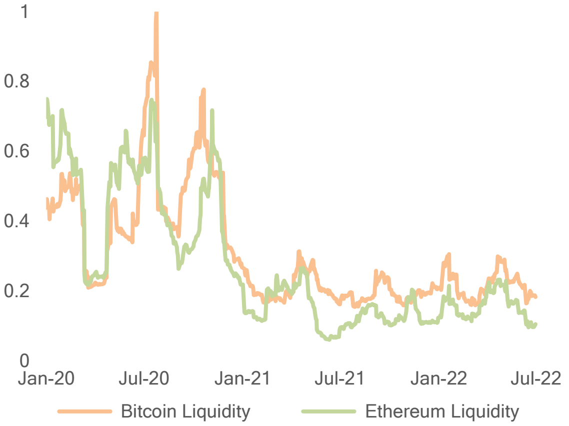
Refining our **asset price correlation** analysis from the last report on trends, risks and vulnerabilities (TRV), we see that since January 2021 BTC exhibits a positive correlation with equities, while correlation with gold tends to be negative (Chart 67). The same holds for ETH.

The co-movement of CAs with equities might be a consequence of greater **adoption by institutional investors**.[43] It could also signal greater spillover risks with traditional markets.[44]

The price **volatility** of the two largest CAs (BTC and ETH) remained elevated but stayed below the volatility peaks of early and mid 2021 (Chart 65). **Trading volumes** decreased at a steady pace – in line with the contraction since November 2021 (Chart 63).

Combining both metrics of volatility and trading volumes, we calculate a measure of **market liquidity** called 'latent liquidity'.[45] The measure reveals a comparatively low level of liquidity since the beginning of 2021 (Chart 59), meaning large orders are more likely to impact prices and that investors may face limited exit options if they attempt to liquidate sizeable positions.[46]

Chart 59
CA market liquidity
Liquidity has fallen



Note: Latent liquidity measure, defined as as the square root of trading volume divided by volatility, calculated on a rolling 30d basis.
Sources: CoinMarketCap, ESMA

Russian sanctions evasion

Following Russia's invasion of Ukraine and subsequent EU and American sanctions, some policymakers raised concerns that CAs could act as a conduit for sanctions evasion. Indeed, immediately after the first sanctions package was announced in late February,[47] the rouble briefly fell by more than 20 % and flows from the rouble to CAs at major exchanges spiked several times, indicating that some rouble holders may have been using CAs to evade capital controls or sanctions.[48]

The EU has since confirmed that the **sanctions encompass CAs** and barred Russian nationals from transactions of more than EUR 10 000

[43] Vigna, P., 'Wall street takes lead in crypto investments', The Wall Street Journal, 27 February 2022.

[44] Adrian, T., Iyer, T. and Qureshi, M. S., 'Crypto prices move more in sync with stocks, posing new risks, IMFBlog, 11 January 2022.

[45] Donier J. and Bouchaud, J. P. (2015), 'Why do markets crash? Bitcoin data offers unprecedented insights', *PLOS* One, Vol. 10, No 10.

[46] Latent liquidity is defined as square root of trading volume divided by volatility – consequently, a relatively low measure indicates comparatively low turnover and/or comparatively high volatility.

[47] Brown, C. P., 'Russia's war on Ukraine: A sanctions timeline', Peterson Institute for International Economics, 13 May 2022.

[48] Godbole, O., 'Ruble-denominated bitcoin volume surges to 9-month high', CoinDesk, 28 February 2022.

through EU service providers.[49, 50] Several of the largest global CAs service providers also said they would comply with the sanctions (stopping short of bans on Russian nationals). However, the know-your-customer (KYC) controls of these entities are questionable, given that they may be operating outside of the regulated space.[51]

Cryptoasset fragilities emerge

Stablecoin circulation peaked in April 2022, reaching a combined supply of EUR 188 bn before dropping to EUR 155 bn in June (Chart 64) due to contagion from the failure of the (then) fifth largest stablecoin by market cap, UST.

In May, the algorithmic stablecoin **UST** lost its peg to USD in a run that also brought down its underlying lending protocol 'Anchor' (a decentralised finance (DeFi) application on the Terra blockchain). Anchor was a major factor in the growth of UST since it allowed users to earn large returns (nearly 20 % annually) by lending their coins through the protocol. During the crisis, the total notional value locked in Anchor fell from EUR 16 bn to EUR 269 m (– 98 %) in a week. The same week the Luna's (Terra's native token) price collapsed from EUR 75 to under EUR 0.01.

Textbox 4

What are algorithmic stablecoins?

Algorithmic stablecoins differ from their reserve-backed counterparts by relying on arbitrage through automated open market operations to support the fiat peg – akin to a central bank defending an exchange rate – instead of using reserves typically invested in low-risk assets (cash, certificates of deposit, commercial paper). In most cases, the arbitrageurs are market participants who are incentivised to maintain a stable peg. Algorithmic stablecoins are particularly prone to confidence effects (even where a liquidity backstop is in place) because of their absence of 1:1 reserve asset backing.

While no single factor stands out, evidence points to massive withdrawals from Anchor in response to a general market downturn as a catalyst for the run. The withdrawals caused UST to break its peg and drove a death spiral of further sell-offs, despite efforts by Terra to support the peg using its EUR 3 bn BTC reserve.[52, 53]

The UST collapse had effects beyond algorithmic stablecoins. Tether, the largest stablecoin by market cap, which uses a reserve-backed approach, fell to USD 0.93, and though it quickly re-established its peg, lost EUR 10bn of market cap to redemptions by anxious investors. Stablecoins in circulation fell for the first time in May (by about 20 % from the April high) in a sign of weakened trust.[54]

Textbox 5

Crypto lender Celsius halts withdrawals

In June 2022, centralised finance (CeFi) lending platform, Celsius, halted customer withdrawals of deposits, signalling liquidity issues (or a deeper insolvency problem).[55] This coincided with a 21 % BTC price fall and led Binance to temporarily suspend BTC withdrawals from its exchange.[56]

Celsius offered its 1.7 million users returns of up to 17 % annually (among the industry highest in the industry), presumably achieved through risky crypto-lending and investment activities. However, Celsius suffered heavily from the overall decline of crypto valuation since November, which brought its AuM down from a peak of EUR 23 bn to EUR 11.5 bn in May 2022, after an initial surge of redemptions.

Following its suspension, Celsius transferred EUR 306 m worth of BTC and ETH to the crypto exchange, FTX, in what some anticipated would be a sale to bootstrap liquidity for customer redemptions.[57] Adding to the uncertainty regarding Celsius' ability to meet demand for redemptions is the balance sheet position of its own governance token (CEL), which has lost 94 % of its value since the beginning of the year (Chart 60).

49 European Commission, 'Ukraine: EU agrees to extend the scope of sanctions on Russia and Belarus', 9 March 2022; Council of the European Union (2022), Council Decision (CFSP) 2022/578 of 8 April 2022 amending Decision 2014/512/CFSP concerning restrictive measures in view of Russia's actions, *Official Journal of the European Union*, L 111, Publications Office of the European Union.

50 US Department of the Treasury 'Frequently asked questions'.

51 Even major exchanges (such as BitMEX) have engaged in jurisdiction shopping to avoid KYC controls. And KYC compliance at Binance, the largest exchange by volume, has come under scrutiny – especially as it does not declared formal domicile in any country.

52 Shukla, S. and Nicolle, E., 'Cost of failed UST peg defense: $2.9 billion in reserves spent, Bloomberg, 16 May 2022.

53 Avan-Nomayo, O., 'Anchor saw $1 billion of liquidations during UST and Luna's death spiral', The Block, 20 May 2022

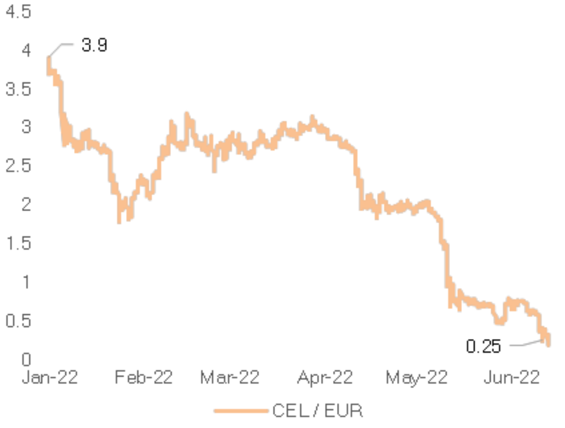
54 Risks related to stablecoins have spurred regulatory responses. The UK treasury is considering giving the Bank of England 'bespoke' insolvency powers over stablecoin issuers under its criteria for systemically important financial institutions, and Japan's parliament in June 2022 passed a law on the treatment of stablecoins.

55 Celsius, 'A memo to the crypto community', 13 June 2022.

56 Samson, A. et al, 'Bitcoin tumbles after crypto lender Celsius blocks all redemptions', Financial Times, 14 June 2022.

57 Newar, A., 'Celsius exodus: $320M in crypto sent to FTX, user withdrawals paused', Cointelegraph, 14 June 2022.

Chart 60
Price of CEL in EUR
Celsius token price falls 94 % in 1H22



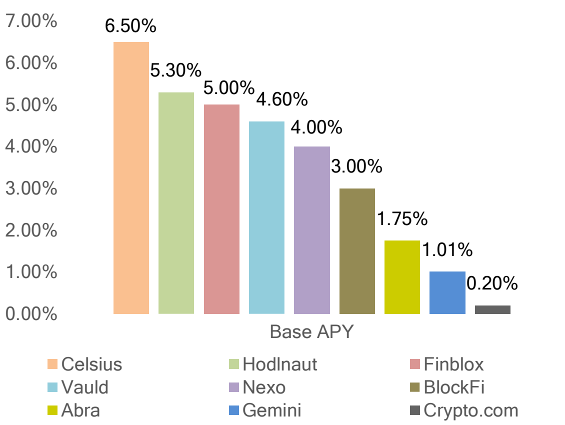
Note: Year-to-date price of CEL / EUR
Sources: CoinAPI, ESMA

There was also speculation that Celsius, which holds EUR 1.44 bn in the staked version of ETH (known as stETH), could sell its supply to avoid a collapse, so widening the price divergence between stETH and ETH ahead of Ethereum's shift to proof of stake[58] – an unrelated but potentially consequential development for the wider crypto market.

What is CeFi and does it present spill-over risks for traditional markets?

Yields offered on most CeFi platforms average nearly 3.5 % per annum but can be as high as 8.5 % (Chart 61), which makes CeFi particularly appealing to consumers, especially considering the extremely low interest rate environment that prevailed until recently. However, yields offered by CeFi are typically achieved through a mix of speculative crypto-lending and investment activities, meaning that it is extremely risky, as illustrated by the Celsius developments.

Chart 61
Price of CEL in EUR
Celsius offers the highest annual yield in CeFi



Note: Comparison of base annual percentage yield (APY) offered on the major CeFi lending platforms. APY refers to the real rate of return earned on an investment, with compounding interest.
Sources: CeFi Rates, ESMA

CeFi has also come under regulatory scrutiny, including in the United States from the Securities and Exchange Commission (SEC) and state-level regulators, over the type of offerings made available to consumers and whether these qualify as securities. In February 2022, for example, the SEC announced a USD 100 m penalty against the CeFi lender, BlockFi, for failing to register its lending programme as a security.[59]

While stablecoins are relatively small in size (15 % of the total CAs market cap), they are instrumental to both DeFi and CA markets generally, as they serve as a major on- and off-ramp between fiat and CAs and facilitate trading between CAs (stablecoins account for the **vast majority of pairs in trading** on centralised exchanges).

This and other recent episodes in the development of so-called stablecoins and other CA instruments obviously require a comprehensive analysis, first and foremost by providers and market participants. Clearly, the events have raised fundamental questions on, and deepened the long-standing **concerns over, the sustainability of business models and the underlying financial engineering in CA markets**. If such events were to lead to growing market distrust in stablecoins, they could affect liquidity in these markets, with potential negative spillover effects into the wider CA system.

Meanwhile, losses from **DeFi protocol exploits** reached EUR 1.4 bn in 1H22 – on pace to exceed total 2021 losses (EUR 2 bn) (Chart 66). Two of the largest hacks in 1H22, Wormhole and Poly Network, exposed the risks of malicious flash loan attacks[60] and weaknesses in the code of unaudited protocols that allow attackers to manipulate blockchain consensus (by controlling 51 % of a node-staking power).[61]

In response to scams and exploits in the crypto market, the ESAs in March 2022 issued a **joint warning** (re)alerting consumers of the high risks of CAs, most of which remain outside of the EU regulated space (pending the entry into force of the markets in crypto-assets regulation, which concluded trilogue negotiations in June).[62]

58 Elder, B., 'Celsius melts as ether smoked', Financial Times, 13 June 2022.

59 US SEC, 'Press release – BlockFi agrees to pay $100 million in penalties and pursue registration of its crypto lending product', 14 February 2022.

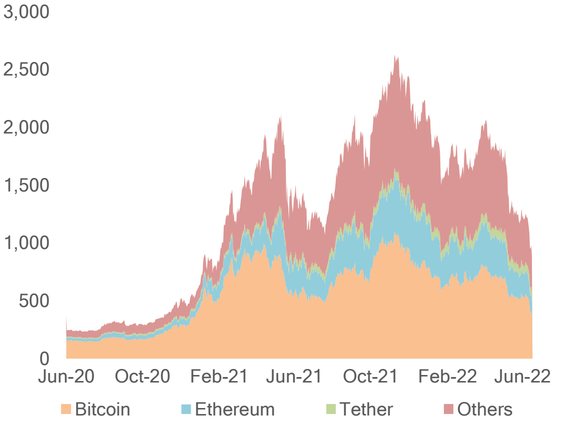
60 Flash loans, accounting for over EUR 300 bn in DeFi volume in 2021 are uncollateralised loans offered by lending protocols that occur in the space of one 'block'.

61 See, Kessler, S. and Young, S. D., 'Ronin attack shows cross-chain crypto is a 'bridge' too far', CoinDesk, 5 April 2022.

62 ESMA, 'EU financial regulators warn consumers on the risks of crypto-assets', 17 March 2022.

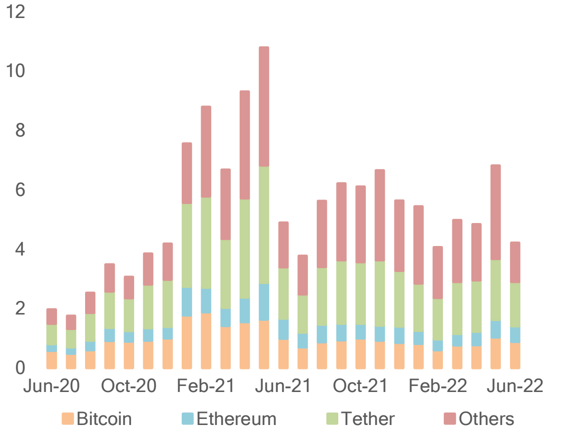
Key indicators

Chart 62
Market capitalisations
Crypto market 60 % below November high



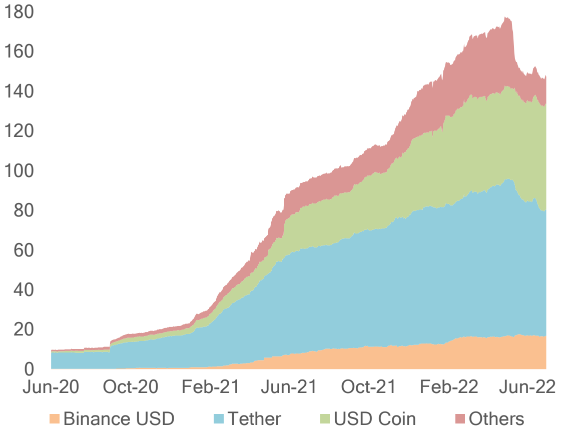
Note: Market capitalisation of Bitcoin, Ethereum, Tether and other crypto-assets, in EUR bn.
Sources: CoinMarketCap, ESMA.

Chart 63
CA trading volume
Trading volumes stabilise



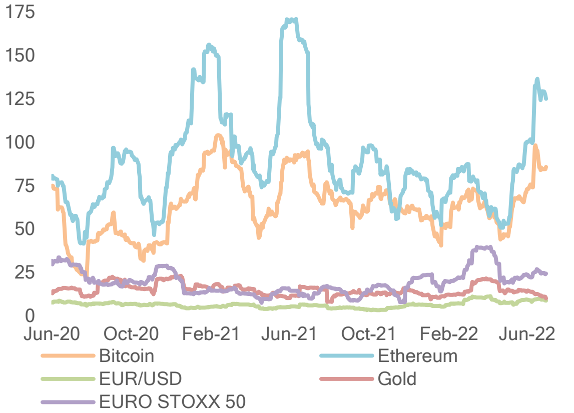
Note: Trading volumes of Bitcoin, Ethereum, Tether and other crypto-assets, in EUR tn.
Sources: CoinMarketCap, ESMA.

Chart 64
Stablecoin market capitalisation
Stablecoins growth peaks in April



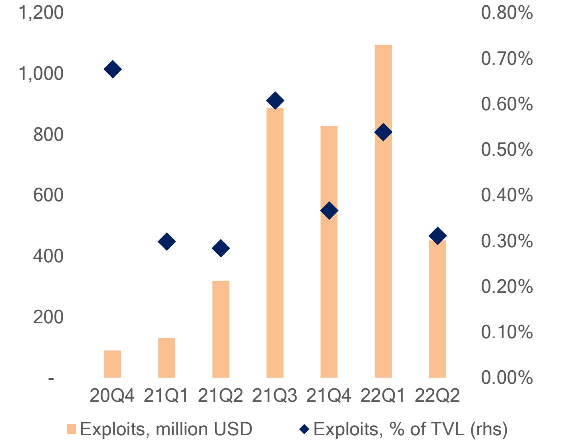
Note: Market capitalisation of Binance USD, Tether, USD Coin and other stablecoins, in EUR bn.
Sources: CoinMarketCap, ESMA.

Chart 65
CA return volatility
Volatility remains elevated



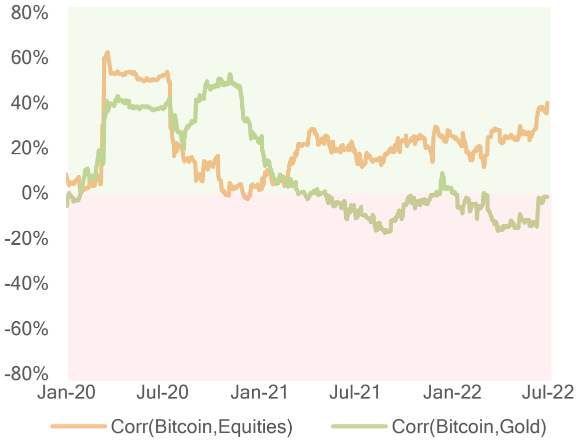
Note: Annualised 30-day historical volatility of EURO STOXX 50, EUR/USD spot rate returns and USD-denominated returns for Bitcoin, Ethereum and gold, in %.
Sources: Refinitiv Datastream, ESMA.

Chart 66
Total (notional) value of losses from DeFi exploits
Losses of EUR 1.4 bn in 2022



Note: Monthly losses from DeFi protocol 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

Chart 67
Price return correlations
BTC is positively correlated with equities



Note: 90d price return correlation (measured daily) between Bitcoin and the Stoxx Europe 600 index.
Sources: Refinitiv, 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/market-analysis/financial-stability).

List of abbreviations

1H(Q)21	first half (quarter) of 2021
1Y-MA	1-year moving average
2H(Q)21	second half (quarter) of 2021
AuM	assets under management
BTC	bitcoin
bps	basis points
CA	cryptoasset
CCP	central counterparty
CeFi	centralised finance
CFD	contract for differences
CRA	credit rating agency
CSD	central securities depository
DeFi	decentralised finance
EA	euro area
ECB	European Central Bank
EEA	European Economic Area
EIU	Economist Intelligence Unit
ESA	European Supervisory Authority
ESMA	European Securities and Markets Authority
ETD	exchange-traded derivative
ETF	exchange-traded fund
ETH	ether
EU	European Union
FIRDS	financial instruments reference data system
FITRS	financial instruments transparency system
GDP	gross domestic product
GM	growth market
HY	high yield
IDEA	Institute for Democracy and Electoral Assistance
IG	investment grade
IMF	International Monetary Fund
IPO	initial public offering
KYC	know your customer
lhs	left hand side axis
MMF	money market fund
MTF	multilateral trading facility
NAV	net asset value
NCA	national competent authority
OTC	over the counter
PE	price-to-earnings
pp	percentage point
rhs	right hand side axis
SEC	Securities and Exchange Commission
SFDR	sustainable finance disclosure regulation
SMEs	small and medium-sized enterprises
TTF	title transfer facility
TRV	report on trends, risks and vulnerabilities
UCITS	undertakings for collective investment in transferable securities
UST	TerraUSD
WAM	weighted average maturity

Currencies and countries abbreviated in accordance with ISO standards.

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