



TRV Risk Monitor

ESMA Report on Trends, Risks and Vulnerabilities No. 1, 2022



ESMA Report on Trends, Risks and Vulnerabilities – Risk Monitor
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Executive summary

Risk summary: The recovery of EU financial markets has slowed down, as the resurgence of the pandemic around the end of 2021 led market participants to revisit their growth and market expectations. We maintain our assessment of very high market and liquidity risks; high credit, contagion and operational risks; and elevated environmental risks. Going forward, we continue to see high risks to institutional and retail investors of further – possibly significant – market corrections. There is scope for a reduction in risk levels if past improvements in the economic environment and the relatively low volatilities in the market prove to be resilient. This resilience will critically depend, in particular, on the ability of markets to deal with geopolitical tensions building up in eastern Europe and to withstand a reduction in public policy support on the monetary or fiscal sides without material disruptions.

Market environment: Macroeconomic conditions continued to improve through 2H21, although the impact of a new wave of the pandemic on the economic outlook remained unclear. Market valuations rose again, despite two episodes of equity market sell-offs in September and November, highlighting the continued potential for market corrections. Inflation concerns added to the uncertainty, with sharp increases in consumer price indices in the US and the euro area, impacting market expectations on monetary policy. Mounting geopolitical tensions in eastern Europe are driving market nervousness. This raises the risk of further bouts of volatility, especially in sectors such as energy and commodities.

Securities markets: The increase in global equity prices continued in 2H21. Two news-related equity sell-offs occurred during this period, showing that the possibility of a market correction remained acute. While volatility was contained, elevated price-earnings ratios pointed towards potential overvaluation. The fixed-income markets were characterised by a slight increase in nominal yields, amid rising inflation concerns and elevated valuations. High-yield bond valuations remained very high, reflecting continued search-for-yield behaviour. Energy commodity prices were particularly volatile, highlighting the potential financial risks associated with the energy transition and Europe's climate policy objectives.

Asset management: Investment fund markets continued to grow in 2H21, with inflows in particular into equity funds. Both liquidity risk and credit risk remained elevated, while higher inflation expectations raised new concerns for duration risk. Funds investing in assets protected against inflation, such as commodity funds, benefited from the increased flows. On the regulatory side, money market fund reform proposals addressed the vulnerabilities that emerged during the COVID-19-related stress.

Consumers: The financial position of households continued to strengthen, aided by strong investment performance and high investor confidence. Net retail investment flows into UCITS remained strong, especially in mixed and equity funds, and bond funds to a lesser extent. A surge in retail investor trading activity during the pandemic showed that operational, market and conduct risks affected an increasing number of investors. This is associated with high levels of consumer complaints.

Infrastructures and services: In 2H21, the volumes traded on EU trading venues remained elevated, similar to those observed in the US, mainly reflecting lively market participation amid a general environment of market exuberance and uncertainty. Central clearing volumes saw further increases and settlement activity also rose. Equity settlement fails remained more frequent than before the COVID-19 crisis and slightly above 2H20 levels across asset classes. The credit outlook of credit rating agencies continued to improve over 2H21.

Market-based finance: Capital market financing continued to increase. Equity primary markets were characterised by exuberance, with initial public offerings reaching record levels while many traded below their listing price. Corporate bond issuance remained strong, with high-yield issuance rising to the highest levels in 5 years. Increased business confidence led to the strongest year ever for mergers and acquisitions deals.

Sustainable finance: The growth of environmental, social and governance (ESG) markets remained unabated as investors further increased their allocation to sustainable investment products and vehicles. In 2H21, ESG fund assets increased by 9 % while ESG bond markets grew by 19 %. Concerns over 'green' asset overvaluation lingered, as the return on equity of less-polluting firms went into negative territory in 2020, while long-dated green bonds traded at a premium relative to other bonds.

Financial innovation: Crypto asset (CA) markets reached new records in 2H21, with a peak at EUR 2.6 trillion in November, fuelled by investor appetite for riskier assets and growing institutional adoption. Stablecoins and decentralised finance (DeFi) continued to expand rapidly, along with concerns over the resilience of their business models. The implementation of the markets in crypto-assets (MiCA) proposal is therefore a priority matter, as this will bring unregulated CAs into the EU regulatory perimeter.

Risk dashboard

Overall ESMA remit

Risk categories			Risk drivers	
	Level	Outlook		Outlook
Overall ESMA remit	○	→	– Geopolitical risks, esp. in eastern Europe	↑
Liquidity risks	○	→	– Macroeconomic environment	→
Market risks	○	→	– Interest rate environment	→
Credit risks	○	→	– Sovereign and private debt markets	↗
Contagion risks	○	↗	– Infrastructure disruptions	→
Operational risks	○	→	– Other political and event risks	↗
Environmental risks	○	↗		

Securities markets

Risk status

Level	Outlook	Drivers
○	→	<ul style="list-style-type: none"> – The long-term economic impact of COVID-19 and a high level of uncertainty – Very high asset revaluation risk amid growing concerns over the expected rise in inflation and volatile energy prices – Market events and political risk as potential trigger events, especially geopolitical developments in eastern Europe – Rising corporate and sovereign indebtedness weakening issuers' balance sheets

Asset management

Risk status

Level	Outlook	Drivers
○	→	<ul style="list-style-type: none"> – Very high revaluation risk across fund categories, in a context of sustained flows and overvaluation concerns – Vulnerability of corporate bond funds to ongoing liquidity mismatches and high credit risk – Increased risk of interest rate shock, related to rising expectations of inflation

Consumers

Risk status

Level	Outlook	Drivers
○	↗	<ul style="list-style-type: none"> – Overall rising engagement and risk-taking by retail investors, especially in an environment of very high market risks, with the potential for further deterioration – Growing marketing and use of higher-risk structured products and crypto assets – Digitalisation and consumer proficiency in social-media-driven trading and copy trading – Continued high fund costs across key asset classes – Trading costs, including payment-for-order flow and misleading labelling in zero-commission trading

Infrastructures and services

Risk status

Level	Outlook	Drivers
○	→	<ul style="list-style-type: none"> – Significant operational risk across a wide range of infrastructure providers, including exposure from fast-rising digitalisation, the use of cloud services in core production processes and rising cyber risks – Rising settlement fails, connected to elevated trading activity

Note: Assessment of the main risks by risk segments for the markets under ESMA's remit since the last assessment, and outlook for the forthcoming quarter. 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

The recovery of EU financial markets came to a halt towards the end of 2021 as the resurgence of the pandemic led market participants to revisit their growth and market expectations.

Macroeconomic conditions continued to improve through 4Q21, supported by strong household consumption expenditure and robust employment growth. EU GDP growth was expected to rebound to 5 % in 2021 ⁽¹⁾. Looking ahead, it is unclear at this stage to what extent a new pandemic wave in Europe will negatively affect the economic outlook.

Against this background, financial asset valuations rose strongly during the second half of the year (Chart 1) amid broadly contained market volatility and despite a sharp increase in commodity price volatility at the end of November (Chart 2). However, concerns over the impact of new economic restrictions in the face of soaring COVID-19 infection rates in Europe and new variants have resurfaced.

Equity market valuations increased overall despite market sell-offs in September and November, following the Evergrande-related news flow and the resurgence of the pandemic, coupled with continued concerns over potential equity overvaluation and the risk of market correction. The mounting geopolitical tensions in eastern Europe have further increased nervousness, raising the probability of further bouts of market volatility going forward.

Net **investment flows** from EA-domiciled investors remained positive through 3Q21 (Chart 6), reflecting continued net purchases of foreign debt securities by EA investors and net sales of EA equities to foreign investors.

Commodity prices experienced particularly strong growth, with a broad-based index gaining 11 % between June and December, driven primarily by energy commodities. Higher energy

prices, combined with an improved growth outlook and tightening labour markets, led to substantially higher **inflation rates**. The annual increase in headline consumer price indices rose to a three-decade high in the United States in October, while they set a new record high in the Euro Area in November ⁽²⁾.

These developments left global financial markets, including EU investors, in a state of elevated **uncertainty**. With GDP growth strengthening and signs that the recovery was taking hold, the level of economic uncertainty had receded (as reflected in the reduced dispersion of GDP forecasts; Chart 4), but a new pandemic wave marked the return of uncertainty. Meanwhile, the scope for potentially higher future inflation and, related to this, greater inflation uncertainty (as reflected in the increased standard deviation of inflation forecasts; Chart 5) raise the prospect of future changes in the **monetary policy stance** of major central banks.

The continued accommodative monetary policy in Europe helps to sustain current corporate and sovereign **debt levels**, which continue to build up as government spending to support the recovery declined only marginally in the EU Member States. The EU gross government debt-to-GDP ratio was expected to rise to 92 % in 2021, an increase of 13 percentage points in two years. Meanwhile, discussions continue over a potential loosening of some of the rules set out in the EU Stability and Growth Pact.

The profitability of **EU banks** improved in 1H21, thanks to lower loan loss provisions and higher revenues ⁽³⁾. In line with the economic recovery, the outlook for EU banks' asset quality gradually improved over the course of 2021. Similar improvements in financial metrics were observed for **EU insurers** going into the third quarter.

⁽¹⁾ European Commission, *Autumn 2021 Economic Forecast*, November 2021.

⁽²⁾ U.S. Bureau of Labor Statistics, *Consumer Price Index*,

Eurostat, *Inflation in the euro area*.

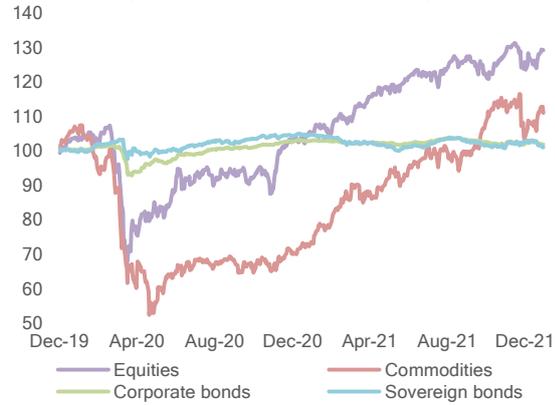
⁽³⁾ European Central Bank, *Financial Stability Review*, November 2021.

Key indicators

Chart 1

Market performance

Commodity prices increased sharply in 3Q

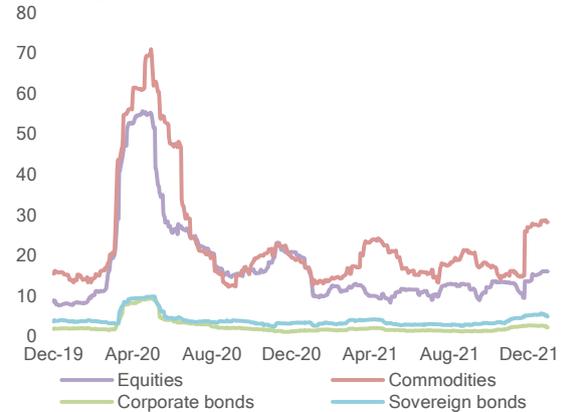


Note: Return indices on EA equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities). 01/12/2019=100. Sources: Refinitiv Datastream, ESMA.

Chart 2

Market volatilities

Volatility spike in December for commodities

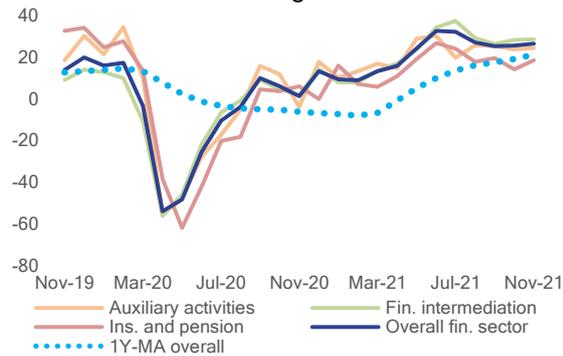


Note: Annualised 40D volatility of return indices on EA equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities), in %. Sources: Refinitiv Datastream, ESMA.

Chart 3

Market confidence

Confidence remained high

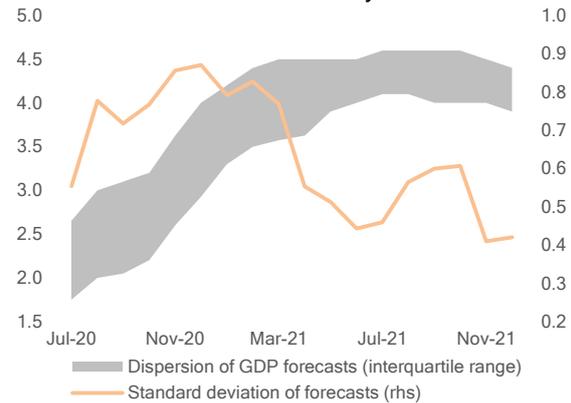


Note: European Commission survey of EU27 financial services sector and subsectors (NACE Rev.2 64, 65, 66). Confidence indicators are averages of the net balance of responses to questions on development of the business situation over the past three months, evolution of demand over the past three months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

Chart 4

Dispersion of GDP forecasts

Reduced economic uncertainty

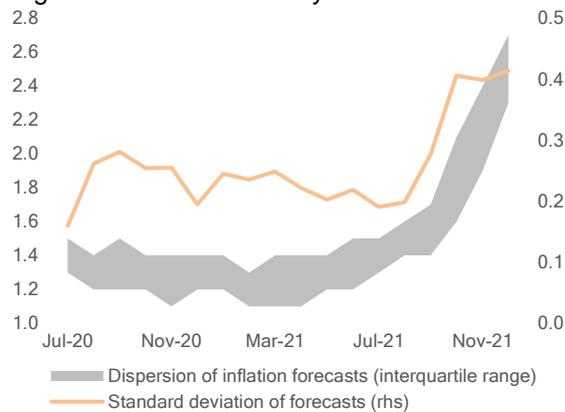


Note: Interquartile range of 2022 GDP forecasts for the euro area (Q3-Q1), in % by vintage month and standard deviation of forecasts, in %. Sources: Refinitiv EIKON, ESMA.

Chart 5

Dispersion of inflation forecasts

Higher inflation uncertainty

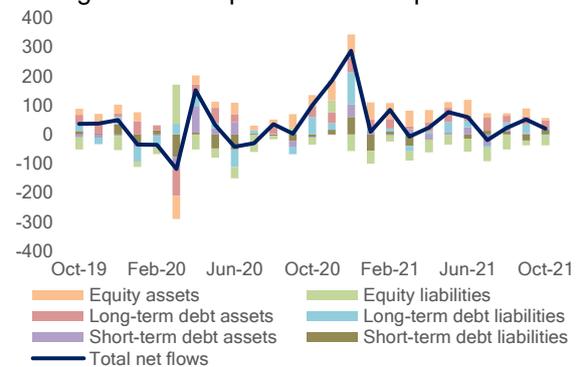


Note: Interquartile range of 2022 inflation forecasts for the euro area (Q3-Q1), in % by vintage month and standard deviation of forecasts, in %. Sources: Refinitiv EIKON, ESMA.

Chart 6

Portfolio investment flows from and to the EA

Foreign investors purchase EA equities



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

Growing uncertainty on equity markets

In 2H21, the evolution of the COVID-19 pandemic continued to impact global equity prices. Amid increasing supply-side constraints and surging energy prices, the global equity price increase continued. However, two news-related equity sell-offs occurred during this period, showing that the possibility of a market correction remains acute. The first was in September, with news related to the Chinese construction firm Evergrande, and the second towards the end of November, with the emergence of a new COVID-19 variant. Nonetheless, most equity indices swung back, continuing their sustained growth trend: + 4.1 % globally in 2H21 and + 11.7 % for the US index (Chart 10). Volatility on the equity markets rose slightly in December (Chart 11), showing that the possibility of a market correction remains acute, but ended the year under its long-term average.

PE ratios continued to be elevated, with EU and US ratios surpassing their ten-year historical averages by 43 % and 42 % respectively at the end of November (Chart 7). This sustained strength in expected earnings points towards a potential overvaluation of equity markets, especially amid the continuing uncertainty of the structural impact of the pandemic on corporates.



Sectoral differentiation widened in European stocks in 2H21, with technology, financial and healthcare shares continuing to outperform (+ 12.0 %, + 10.6 % and + 10.5 % respectively in 2H21). The returns in other sectors such as telecommunications lagged behind (– 1.0 %). European **bank and insurance valuations** continued to catch up with other financials (+ 10.8 % in 2H21), benefiting from increased profitability and the positive impact of the potential upswing in inflation, while shares from other financial services also continued to increase (Chart 12).

Fixed income: valuations grow, yields rise

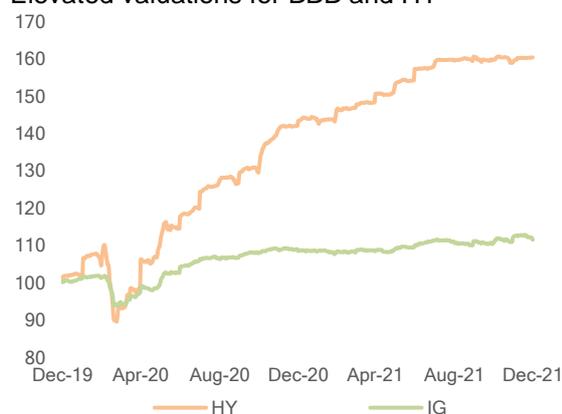
In **fixed income markets**, stronger inflationary pressure towards the end of the year drove a moderate increase in nominal yields, especially for sovereign bonds. In corporate bond markets, the potential for exuberance continued to prevail, with valuations at record levels and low borrowing costs favoured by economic optimism and an ongoing accommodative monetary policy. The ECB announced that it would leave interest rates unchanged and maintain flexibility in the conduct of monetary policy support. This partially mitigated the pessimism around rising yields due to inflationary pressure. As of 2H21, cumulative net purchases of private and public sector securities under the Pandemic Emergency Purchase Programme reached EUR 1.6 trillion, with purchases to end on 31 March 2022. To ease the transition, the pace of the Asset Purchase Programme will temporarily double after that date.

After a decline in 3Q21 – driven by the lifting of pandemic-related restrictive measures across the Member States and improved economic sentiment – **EA sovereign yields** started to rise again towards the end of the year, mostly due to the increase in inflation. Spillovers from US market developments also played a role in 4Q21, with inflation concerns driving a large sell-off in US Treasuries in November 2021, and in reaction to an anticipated tightening of monetary policy by the US Federal Reserve. On top of this, uncertainty over the economic impact in the EU of the new COVID-19 variant contributed to volatility in sovereign bond markets. In 4Q21, the

largest quarterly upswings were observed for Italy (+ 30 bps) and Spain (+ 15 bps), versus + 7 bps for the US. Against this background, spreads against the German Bunds have experienced a slight increase as well.

In 2H21 **corporate bond valuations** continued to grow, but at a slower pace, standing significantly above pre-pandemic levels. As of the end of 2021, the investment grade (IG) segment stood at 10 % above pre-crisis levels but saw a bifurcation between high-grade (AAA to A) and other IG bonds. The growth in IG valuations was entirely driven by BBB-rated bonds, whose market value rose to + 17 % above pre-crisis levels in 2H21. Meanwhile, higher-quality securities fell towards the same values observed before the pandemic. This preference for higher yields points towards **a continued investor risk appetite** with signs of exuberance prevailing in the HY segment, whose market value in 2H21 stands at up to + 49 % compared to February 2020, favoured by easier market conditions and search-for-yield strategies (Chart 8).

Chart 8
Market value of EUR IG and HY corporate bonds
Elevated valuations for BBB and HY



Note: Market value of BoAML Euro IG and HY corporate bond indices, rebased with 1 December 2019 = 100.
Sources: Refinitiv Datastream, ESMA

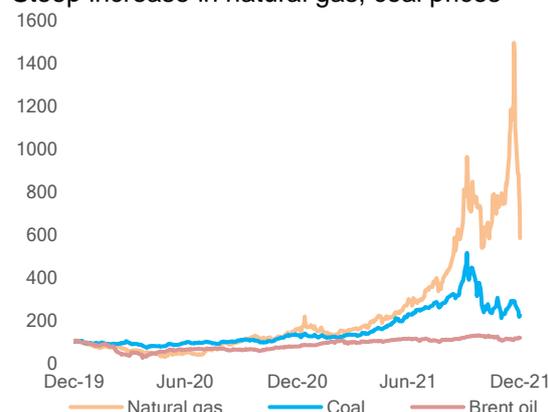
Amid growing valuations, corporate bonds also showed signs of sensitivity to inflation concerns, as reflected by the widening spreads across rating categories (Chart 14). The combination of a prolonged low interest rate environment and elevated valuations left lower-rated bonds particularly vulnerable to adverse yield and growth shocks. Moreover, the sensitivity of corporate bond prices depends on the ability of vulnerable firms to withstand potential market shocks.

Commodities: volatility increased substantially

Commodity markets experienced very high volatility during 2H21, despite some heterogeneity between commodity types. Energy prices soared – with natural gas and coal up by 250 % and 70 % respectively in the twelve months to December – driven by supply constraints and strong demand. They had previously reached peaks of + 800 % and + 120 %, respectively, on a year-ago basis, before declining sharply (Chart 9). Natural gas prices also experienced volatility that was higher than usual, reflecting short-term price movements and a high level of uncertainty regarding market developments.

In addition, the price of EU carbon emissions has risen by 125 % since the beginning of 2021 ⁽⁴⁾, a development linked to greater demand for polluting energy sources (particularly coal) and more stringent EU climate policy targets. Despite experiencing an upward rally for most of 2H21, oil prices dropped moderately at the end of November 2021 (– 19 % compared to the start of the month) following negative sentiment linked to the emergence of a new COVID-19 variant.

Chart 9
Energy commodity prices
Steep increase in natural gas, coal prices



Note: Index prices of natural gas (NYMEX Dutch TTF Natural Gas Calendar Month), coal (ICE Coal Rotterdam Continuous trading) and crude oil (Brent 1 month future), rebased with 31 December 2019 = 100.
Sources: Refinitiv EIKON, ESMA.

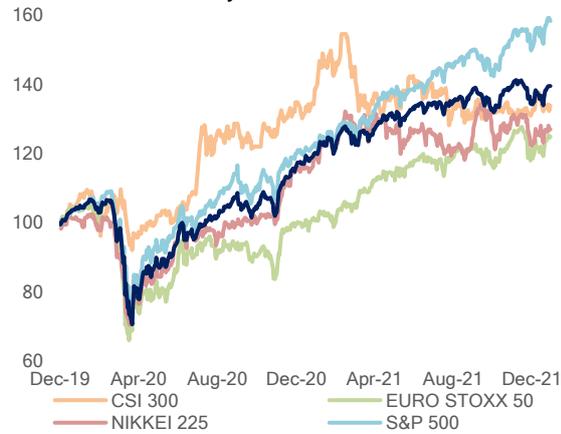
Globally, the prices of industrial metals continued to increase in 2H21. They are in high demand, due to the economic rebound from COVID-19 and the transition towards renewable energies – metals such as copper and nickel are considered instrumental for the energy transition.

⁽⁴⁾ ESMA, *Preliminary report on emissions allowances and derivatives thereof*, 2021.

Key indicators

Chart 10

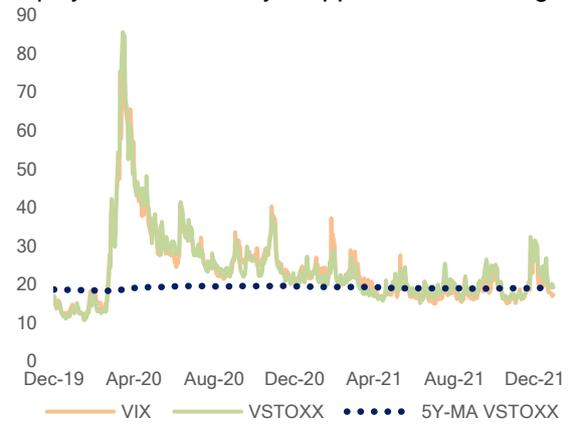
Regional equity market performance
Continued recovery, slower for EU



Note: Regional equity return indices. 01/12/2019=100.
Sources: Refinitiv Datastream, ESMA.

Chart 11

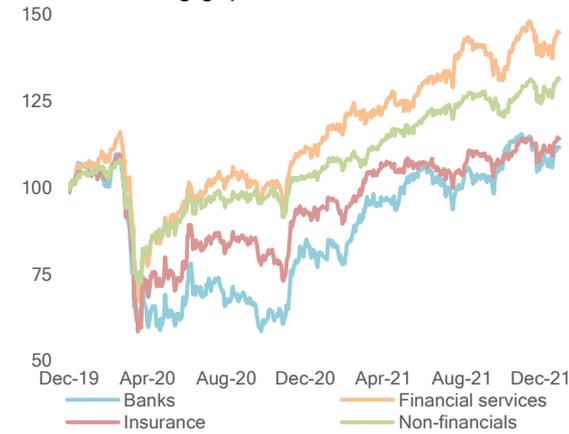
Equity market volatility indices
Equity market volatility dropped below average



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

Chart 12

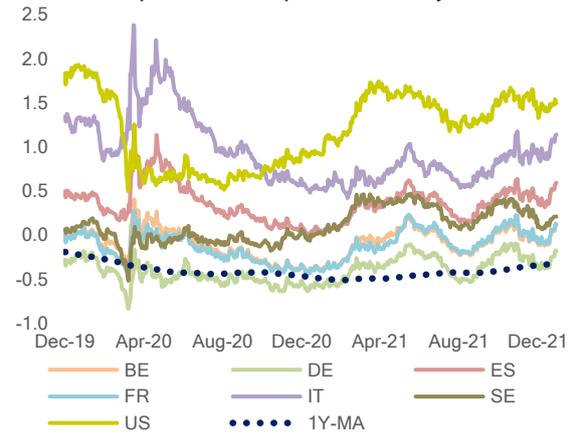
European financials return indices
Banks reducing gap in valuation



Note: STOXX Europe 600 sectoral return indices. 01/12/2019=100.
Sources: Refinitiv Datastream, ESMA.

Chart 13

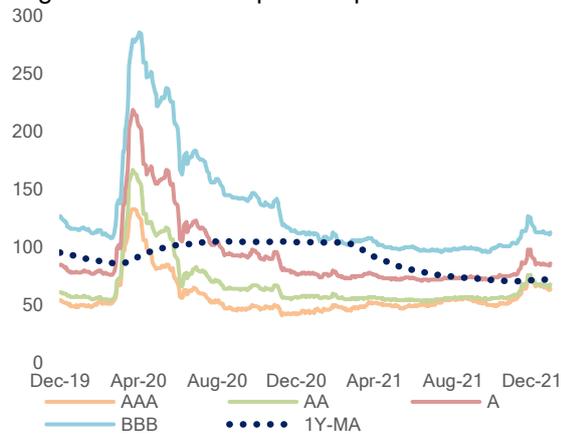
EU sovereign bond yields
Inflation expectation impact on sov. yields



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 14

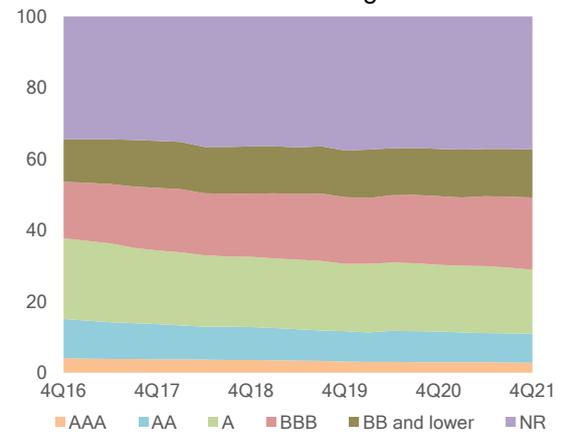
EA corporate bond spreads
Slight increase in corporate spreads



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 15

Corporate bond ratings distribution
BBB debt share continues to grow



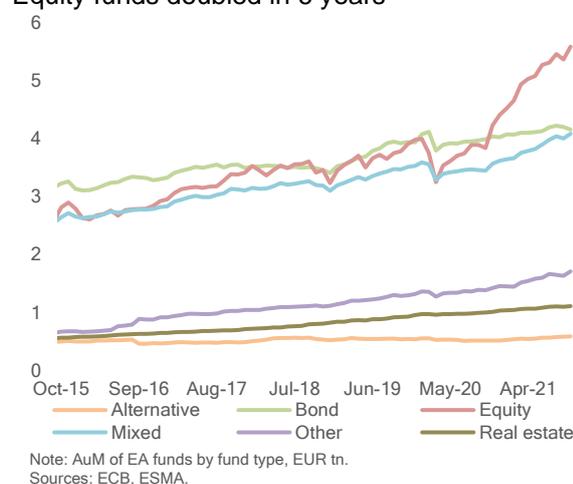
Note: Outstanding amount of corporate bonds in the EEA30 as of issuance date by rating category, in % of the total. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Asset management

Fund sector growth raises valuation concerns

The rise in financial markets is also reflected in the sustained growth of the asset management sector. In 2H21, EA **investment funds** managed EUR 18.6 trillion of assets, up from EUR 16.5 trillion in 2H20 (+ 12.8 %), owing to both valuation effects and investor flows.

Chart 16
Assets under management
Equity funds doubled in 6 years



The rise in assets is particularly visible in **equity funds**, with assets under management (AuM) increasing by 46 % year-on-year, up to EUR 5.6 trillion (Chart 16). They now represent 30 % of the sector, followed by bonds (22 %) and mixed funds (22 %). From a longer-term perspective, equity funds have doubled their size in six years, driven by both valuations and inflows. For inflows, the trend has accelerated, with cumulative flows for equity funds over the last year (EUR 414 billion) exceeding the five preceding years combined (EUR 320 billion). Such investments are closely connected to the overvaluation concerns in the underlying equity markets – and may thus be at risk in the event of significant market repricing.

New risks add to existing vulnerabilities

Credit, valuation and liquidity risks remained elevated in the fund sector, as some lingering effects of the crisis on fund portfolios may now combine with new concerns. Bond fund exposure to **credit risk** increased in 2H21, following the trend observed in the first half of the year (Chart 17). This is especially the case for HY funds, whose portfolios remain rated below BB on average. The likelihood of materialisation of credit risk has decreased in the short term, amid an improved macroeconomic environment. However, portfolios remain vulnerable to a deterioration in credit risk and risk appetite by investors, amid stretched valuations in fixed-income markets.

Chart 17
Credit risk
Credit risk elevated in HY funds



Liquidity risk remains an ongoing concern, especially for corporate bond funds, as highlighted by ESMA's assessment of corporate bond fund preparedness to future adverse shocks ⁽⁵⁾. The proportion of cash holdings of corporate bond funds remained stable (Chart 21), with median cash holdings representing 2.2 % of their portfolio. This level is significantly lower than the one observed during the COVID-19-related stress in 1Q20 (3 %), but higher than in the pre-

⁽⁵⁾ ESMA, *Recommendation of the European Systemic Risk Board (ESRB) on liquidity risk in investment funds*, November 2020.

crisis period (1.6 %). In this respect, ESMA is continuing its supervisory convergence work amongst NCAs in the area of liquidity risk management.

In addition, **duration risk** increased in a context of rising inflation expectations. The portfolio duration of bond funds did not increase in 2H21, remaining generally higher for IG bond funds (7.2 years) than for HY funds (4 years). However, the growing inflation expectations have made bond funds more vulnerable to an interest rate (and/or a credit spread) shock. According to the ECB, an increase of 1 percentage point in yield would have a potential impact of – 7.5 % on bond fund NAV notwithstanding potential hedging ⁽⁶⁾. The consequences of such a shock would depend on the behaviour of market participants and on the risk of losses triggering investor redemptions.

Against this backdrop, we expect that **inflation risk** will primarily affect fixed-income funds with a long duration, while equity funds should be more protected against inflation – if companies are able to raise prices to preserve their operational margins. Similarly, tangible assets such as commodities should be relatively immune to inflation. Finally, fixed-income investors can also respond by shortening durations and switching to inflation-protected bonds ⁽⁷⁾. An analysis of fund flows shows substantial inflows into commodity funds (16 % of NAV in one year). Within fixed-income funds, flows into loan funds (13 % of NAV) and inflation-protected funds (32 % of NAV) are significant, albeit from a low base of EUR 100 billion of total AuM. Inflation-protected funds are particularly keen on investing in government inflation-linked debt.

MMFs: stable market size

Inflation concerns are relatively less relevant for MMFs due to their short-term nature. Against this backdrop, in 2H21 the **size of the EU MMF** sector remained stable at around EUR 1.4 trillion (Chart 23). The MMFs that were exposed to private debt – such as Low-Volatility Net Asset Value (LVNAVs) and Variable Net Asset Value (VNAVs) – accounted for around 90 % of total assets (45 % for each type) in October. The remainder was held by Public Debt Constant NAV funds (10 % of MMF assets, all in non-EU currencies). In September, MMFs recorded **outflows** of around EUR 50 billion, reflecting

seasonal patterns at the end of the quarter (Chart 24), while cumulative net flows since June 2021 were positive across all MMF types (EUR 76 billion).

The **liquidity levels** for MMFs exposed to private debt (VNAVs and LVNAVs) remained stable at high levels, while work on regulatory reforms has progressed (Textbox 2). Median weekly liquid assets stood at around 45 % of NAV for LVNAVs (compared with a regulatory requirement of 30 %) and VNAVs (compared with a requirement of 15 %) at the end of November 2021 (Chart 18).

Chart 18

Weekly liquid assets for LVNAVs
Significantly above requirements



Note: Median Weekly Liquid Assets (WLA) for LVNAVs, in % of NAV.
Sources: Crane, ESMA.

Textbox 1

MMF regulatory reforms

Following the acute stress observed among EU and US MMFs in March 2020, a range of regulatory initiatives have taken place to mitigate vulnerabilities in this sector. At the global level, the Financial Stability Board has published recommendations to enhance MMF resilience ⁽⁸⁾. The final report calls for reforms to reduce the likelihood of destabilising redemptions by: (a) imposing on redeeming investors the costs of their redemptions (for example through swing pricing or redemption fees); and/or (b) requiring tools to absorb losses (such as capital buffers). Threshold effects should also be reduced by: (a) decoupling the use of fees and gates from the breach of regulatory requirements; and (b) removing stable NAV. The report also suggests options to reduce the impact of large redemptions by reducing liquidity transformation (for example through limits on eligible assets or additional liquidity requirements). The FSB also discusses measures such as enhanced stress testing and reporting.

In the EU, the ESRB has recommended that LVNAVs should have a floating NAV and that private debt MMFs, including mandatory sovereign holdings ⁽⁹⁾, should be subject to higher liquidity requirements.

ESMA will provide an Opinion to the European Commission in early 2022, as part of the MMF regulation review.

⁽⁶⁾ ECB, *Financial Stability Review*, November 2021.

⁽⁷⁾ BIS, *Inflation hedging portfolios in different regimes*, 2011.

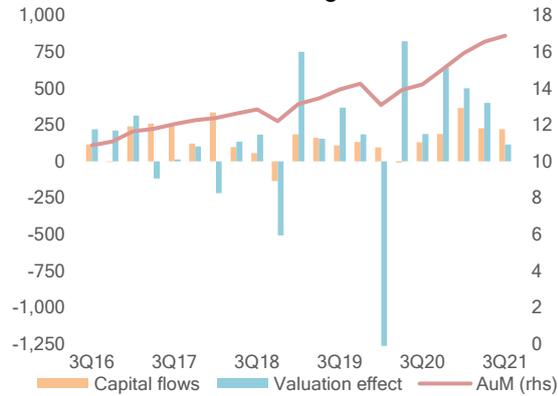
⁽⁸⁾ FSB, *Policy Proposals to Enhance Money Market Fund Resilience*, Final report, October 2021.

Key indicators

Chart 19

AuM of EU funds

Valuation effects drive the growth

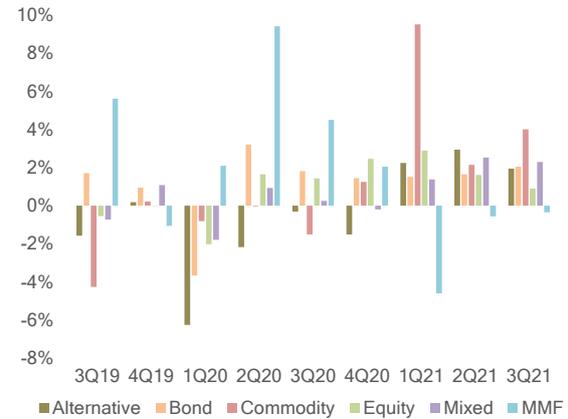


Note: Net valuation effect related to the AuM of EA investment funds, computed as the intraperiod change in AuM, net of flows received in the respective period. Capital flows and valuation effects in EUR bn. AuM expressed in EUR tn.
Sources: ECB, ESMA.

Chart 20

EU fund flows by fund type

Preference for commodities

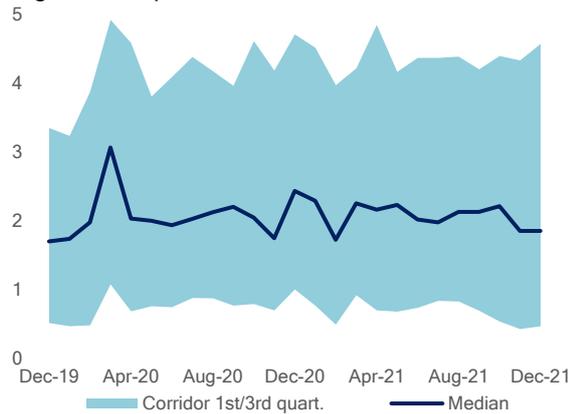


Note: EU-domiciled funds' quarterly flows, in % of NAV.
Sources: Refinitiv Lipper, ESMA.

Chart 21

Corporate bond fund cash holdings

Higher than pre-crisis

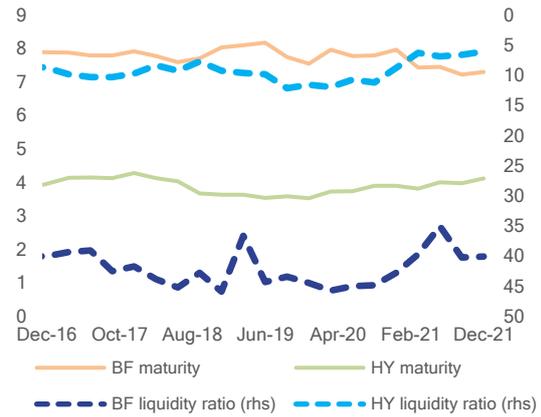


Note: Median and difference between the 1st and 3rd quartiles of the value of cash held by EU27 corporate bond funds, in % of portfolio holdings. Short positions can have a negative value.
Sources: Refinitiv Lipper, ESMA.

Chart 22

Maturity and liquidity risk profile of EU funds

Risks stable

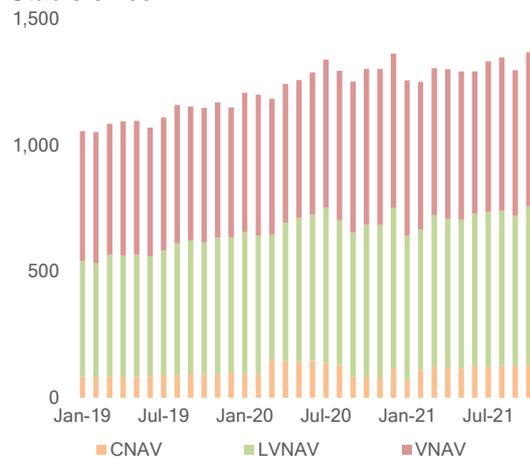


Note: Quarterly effective average maturity of EU27 fund assets, in years; ESMA liquidity ratio (rhs, in reverse order).
Sources: Refinitiv Lipper, ESMA.

Chart 23

MMF total assets

Stable since 1H21

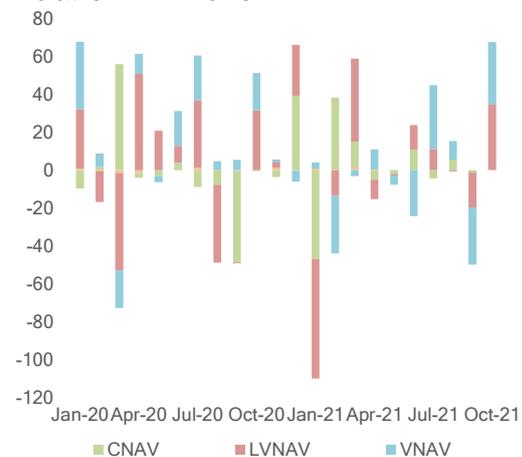


Note: MMF assets by type, in EUR bn.
Sources: Refinitiv Lipper, ESMA.

Chart 24

MMF flows

Volatile VNAV flows



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

Consumers

Investors confident amid strengthening finances

The **financial position of households** continued to strengthen in 2021. Total EU household financial assets grew strongly to EUR 33 trillion (Chart 34), while the household assets-to-liabilities ratio increased to 370 %, a five-year high. Disposable income growth, which had plunged during the onset of the pandemic to -3 % in 2Q20, surged to +6 % by 2Q21 (Chart 25), around three times the two-year average. At the same time, the savings rate remained elevated in 2Q21 (Chart 28). The surge in savings since 2Q20 is because many households maintained their incomes but had severely restricted opportunities for consumption.

Chart 25
Household disposable income growth
Strong rebound to 5-year high



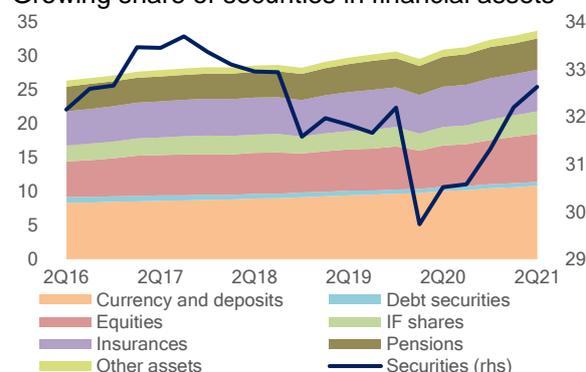
Note: Annualised growth rate of household gross disposable income adjusted for changes in pension entitlements for EU27 countries, in %. 5Y-MA=five-year moving average of the growth rate.
Sources: Eurostat, ESMA.

The continued strengthening of household balance sheets and expansion in resources available to consumers may have bolstered **retail investor confidence**, which remained positive in 4Q21 (Chart 30). However, the impact on investor confidence of the cooling of the markets around the end of 2021 remains to be seen. Institutional investor confidence also remained high, suggesting that market developments – such as the vaccine deployment and economic recovery – may also underpin the positive outlook among consumers.

This confidence persists among retail investors, despite the prospect of higher **inflation**. The re-

emergence of inflation may be a factor behind the increasing level of investment in securities since the start of the pandemic (Chart 26), while flows into bank deposits, having surged during 2020, started to decline in 1H21 (Chart 29). Retail investor flows into equities and investment fund shares reflect large increases in retail trading in these asset classes since the start of the pandemic.

Chart 26
Household financial assets by asset class
Growing share of securities in financial assets



Note: Financial assets of EU27 households, EUR tn, and share of securities investments (debt securities, equities and IF shares) in total, in %. IF shares=investment fund shares. Other financial assets=Insurance technical reserves, financial derivatives, loans granted and other accounts receivable.
Sources: ECB, ESMA.

Consumer confidence was also underpinned by the performance of **equity markets**, which rallied by 14 % in 1H21.

Retail investment: robust performance

The **performance of retail investments** remained at the high levels reached in 1H21, with monthly gross returns of around +1.2 % at the end of 3Q21 (Chart 31). This is in line with an improved macroeconomic outlook and rising financial asset valuations in 2H21.

Net retail investment flows into UCITS remained strong, especially in the case of mixed and equity funds, and bond funds to a lesser extent. The annual net flows into mixed and equity UCITS were EUR 74 billion and EUR 60 billion respectively in 3Q21, up from EUR 22 billion and EUR 10 billion in 3Q20. The annual net inflows to bond UCITS in 3Q21 were smaller, but positive: EUR 57 billion, up from EUR 22 billion in 3Q20.

The strong inflows were matched by strong annual performances among UCITS funds. **Net annual performance**, across asset classes and after taking costs into account, was on average 14 % at the end of 3Q21, up from 0.1 % in 3Q20 (Chart 32). This sustained performance was related to strong market performance, especially for equities that rallied in 1H21.

Turning to UCITS **investment by management type**, in 3Q21 passive and exchange-traded fund (ETF) equity UCITS, taken together, slightly outperformed active funds (28 % v 27 %) on a net basis. This is a reversal of a year earlier, when net annual performance for active UCITS was 2.7 %, versus 1.7 % for index funds and below zero for ETFs.

Investor protection: complaints remain high

Among NCAs reporting quarterly data, **complaints** in connection with financial instruments – reported via firms as well as directly by consumers to NCAs – spiked in 1Q21 to around twice the two-year average (Chart 33), while remaining near the average in 2Q21. Interpreting these trends requires an understanding of recent events, data limitations – such as significant time lags – and heterogeneity between countries.

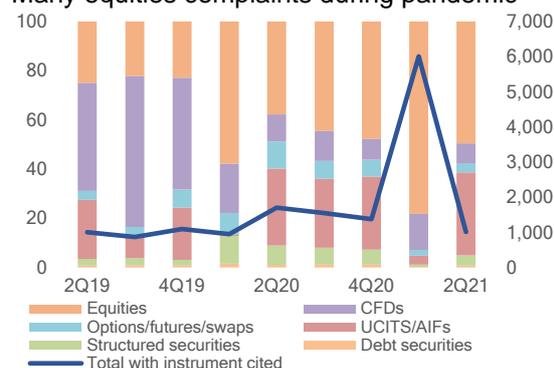
The huge increase in 1Q21 was largely driven by complaints directly raised by consumers with the German national authorities, in connection with operational problems resulting from a system overload during very high volumes of trading in equities by retail investors via online brokers (Chart 27)⁽¹⁰⁾. Among the complaints with a breakdown by financial instrument, 78 % of the total in 1Q21 were about equities, up from 29 % in 4Q20. This figure dropped to 50 % in 2Q21, still far above the pre-pandemic share.

Elevated levels of consumer complaints levels may relate to a large increase in retail trading during the early days of the pandemic, coupled with other factors such as losses during periods of market stress. Time lags in the process of recording and reporting complaints affect the reported trends.

The relatively high levels of complaints relating to contracts for differences (CFDs) persisted in absolute terms, though the increase in absolute

numbers during the pandemic means that they have fallen as a share of complaints categorised by instrument. 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 a limited number of complaints can be categorised by financial instrument.

Chart 27
Complaints data by financial instrument type
Many equities complaints during pandemic



Note: Share of complaints from quarterly-reporting NCAs (n=14) received direct from consumer 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

⁽¹⁰⁾ BaFin, *Information from BaFin on complaints about trading disruptions at brokers* (in German), February 2021.

Key indicators

Chart 28

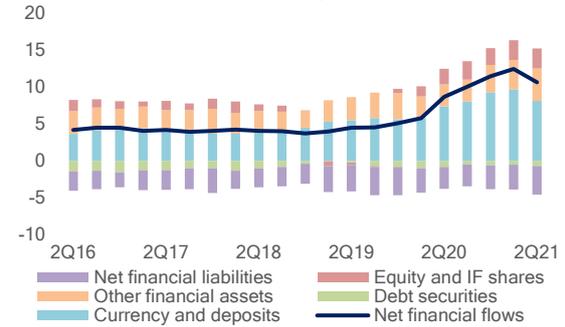
Household saving and investment rates
Saving rates remain elevated



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

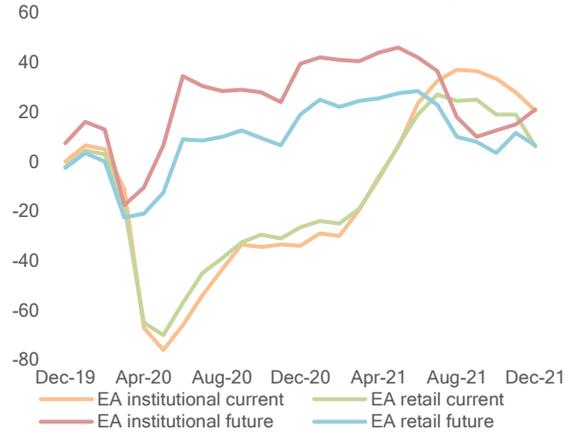
Household net financial asset flows
Consumers demand equity and IF shares



Note: Net acquisition of financial assets and net incurrence of liabilities for EA households as a share of their gross disposable income adjusted for changes in pension entitlements, based on a one-year rolling period, in %. IF shares=investment fund shares. Other financial assets=Insurance technical reserves, financial derivatives, loans granted and other accounts receivable. Net financial flows=Net household lending (positive values) or borrowing (negative values) to/from sectoral financial accounts. Liabilities multiplied by -1 to present as outflows.
 Sources: ECB, ESMA.

Chart 30

Investor sentiment
Retail investor confidence near 2Y-high



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

Household portfolio returns
Sustained returns



Note: One-year moving average of the monthly gross 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, ESMA.

Chart 32

UCITS retail investors net annual performance
Decreasing yet at relatively high levels



Note: Evolution of gross annual performance of EU27 UCITS, retail investors only, by asset class, in %.
 Sources: Refinitiv Lipper, ESMA.

Chart 33

Overall complaint volumes
Surge in complaints during the pandemic



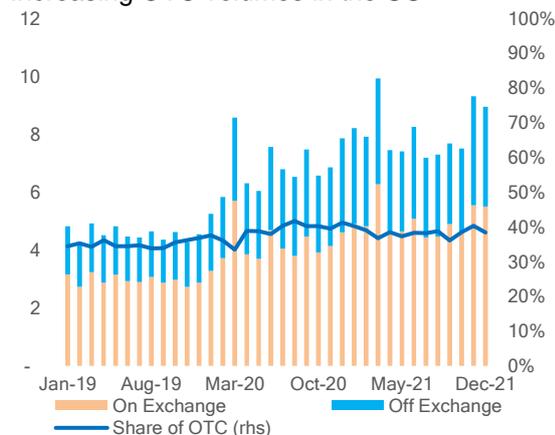
Note: Number of complaints recorded by quarterly-reporting NCAs (n=14) via given reporting channels. "NCA"=Reports lodged directly by consumers with NCAs. "Firms"=Complaints recorded by NCAs via firms. "Average total"=average total number from 4Q18 to 4Q20.
 Sources: ESMA complaints database

Infrastructures and services

Trading venues: volumes remain elevated

Equity trading volumes remained elevated in 2H21, especially in November, which saw the highest trade volumes of the year since the March 2021 peak. The latter month saw trading activity that was higher than usual both in the EEA and in the US (+ 24 % compared to the 2021 average in the EEA and + 27 % in the US). The share of trading on European trading venues and systematic internalisers increased slightly in 2H21 compared to 1H21 (+ 0.5 % and + 1 %, respectively), while OTC trading decreased by 1.6 % over the same period. The relative composition of equity trading in dark pools and periodic auctions remained stable in 2H21 (Chart 36).

Chart 34
US equity trading volumes
Increasing OTC volumes in the US



Note: US equity trading volumes on and off-exchange, in EUR tn. Off-exchange trading volumes over the total on the rhs, in percent.
Sources: Refinitiv Eikon, ESMA.

High levels of equity trading were also observed in the US, where overall trading volumes and off-exchange trading have increased significantly in the past two years (Chart 34), with overall volumes up by 86 % since January 2019 and OTC volumes more than doubling (up by 107 %) over the same period. This increase is likely connected to lively market participation, including from retail investors, amid a general environment of market exuberance and uncertainty. On the EEA markets, the OTC share of total equity trading remained stable in 2021 at around 20 %.

High volumes and uncertainty also had an impact on the later stages of the trading life cycle, with **settlement fail** rates increasing towards the end of 2021 and an increase in settlement activity (Chart 39).

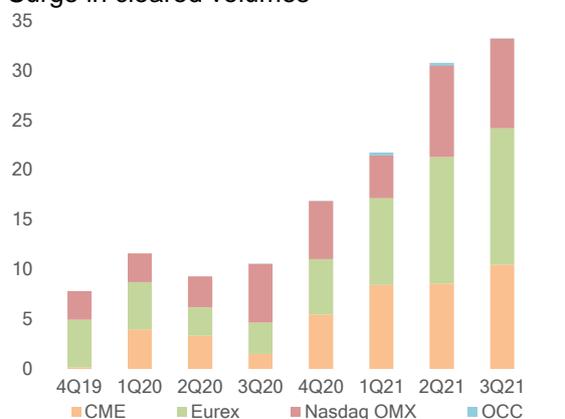
Clearing: ESG index and new RFR clearing rise

The notional amounts outstanding in the EU for interest rate derivatives referencing new **benchmarks** – such as SONIA (+ 22 % over 3Q21), €STR (+ 40 %), SOFR (+ 38 %) and TONA (+ 71 %, albeit from very low levels) – continued to increase, amid a wider adoption of these new risk-free rates. On the other hand, activity in LIBOR remained limited, due to its phasing out.

The **central clearing landscape** remained stable over 2H21, with stable clearing volumes for the main cleared OTC markets and margin amounts – except for commodity derivatives, where both activity and margin collected increased – and no increase in margin breaches or operational outages.

Nevertheless, the boom in ESG investing resulted in a surge in the trading and clearing of futures and options on ESG-screened equity indices, with some EU CCPs being key market infrastructures in this segment (Chart 35).

Chart 35
Cleared volumes of derivatives on ESG indices
Surge in cleared volumes



Note: Quarterly notional volumes cleared for Futures and options on ESG-screened version of DAX, STOXX, S&P500, OMX and MSCI equity indices. In EUR bn.
Sources: Clarus Financial Technology, ESMA.

CRAs: positive outlook continues

The rating data show that CRAs' **outlook for credit risk** for ratings of issuers and instruments in the EU continued to improve in late 2021 – continuing the trend of earlier in the year and in line with wider developments – as economic activity continued to recover from the initial stages of the pandemic. By the end of 2021, ratings drift equalled or exceeded pre-pandemic levels in all debt categories. However, corporate downgrades grew relative to upgrades from July to November (Chart 40), though upgrades outpaced downgrades.

The ratings drift for **structured finance** remained high (Chart 41). This was particularly driven by upgrades in RMBS, and to a lesser extent in ABS. In addition, CMBS – the most affected of the structured finance products earlier in the pandemic – returned to positive drift late in 2021.

Corporate non-financials, which were the most affected by downgrades in 2020, showed little drift either way in late 2021, similar to pre-pandemic trends. However, the increasingly positive expectations of CRAs are also visible here, in a marked increase in the proportion of non-financial corporates ratings assigned a positive outlook. At the end of 2021, among corporate non-financials with an outlook, 5 % had a positive outlook, up from 2 % in June. Over the same period, positive outlooks particularly increased among high-yield corporate non-financials, up to 13 % from 5 % – though the number of positive outlooks remained smaller than the number of negative outlooks across rating categories.

For **sovereign and public rating trends**, the ratings drift was stable at the end of 2021 except for state ratings, which saw a marked increase in drift towards the end of the year.

Fallen angels were fewer over 2H21 for both corporates and structured finance compared to 1H21. The share of fallen angels was 0.04 % for corporates overall (down from 0.1 % in 1H21) and 0.1 % for structured finance (down from 0.2 % in 1H21), while for sovereigns it remained stable at 0 %. In contrast, rising stars were more prevalent, down slightly for structured finance (1.2 % from 1.3 %) and up for both sovereigns (0.2 % from 0 %) and corporates (0.2 % from 0.1 %).

The proportions of corporate and sovereign **instruments rated BBB** (just above the IG

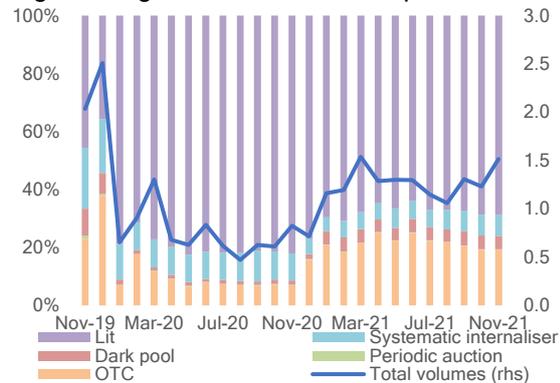
boundary) continued to increase gradually, though they fell slightly for structured finance. By the end of December 2021, 17.6 % of corporate ratings were BBB, up very slightly from 17.5 % in June, while sovereigns edged up to 12 % from 11.7 % and structured finance fell slightly to 11.3 % from 11.5 %. The large share of BBB-rated instruments shows a continued vulnerability to jumps in fallen angels if the economic outlook were to deteriorate suddenly.

Key indicators

Chart 36

Equity trading volumes

High trading volumes, stable composition

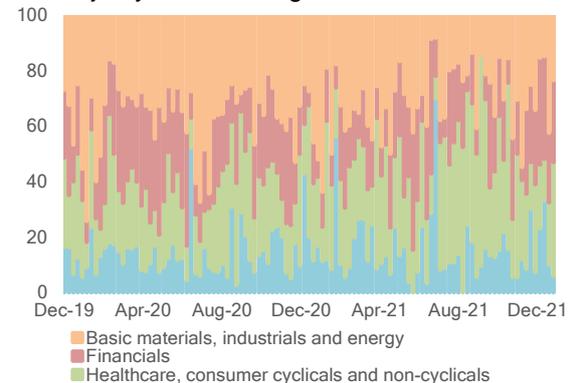


Note: Type of equity trading in the EEA as a percentage of total turnover. Total equity trading turnover in EUR trillion (right axis). Turnover volumes reported by UK TVs and SIs as well as OTC trading reported by UK APAs are included only until the end of 2019. Last available data point is November 2021.
Sources: FIRDS, FITRS, ESMA

Chart 37

Circuit breakers by sector

CB majority: consumer goods and healthcare

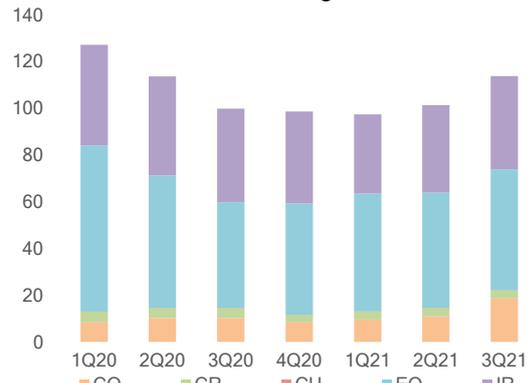


Note: Percentage of circuit-breaker trigger events by economic sector registered on 29 EEA30 trading venues for all constituents of the STOXX Europe Large/Mid/Small 200 and a large sample of ETFs tracking these indices or some of their subindices. Results displayed as weekly aggregates.
Sources: Morningstar Real-Time Data, ESMA.

Chart 38

Initial margins held at EU and UK CCPs

Increased amounts of margins

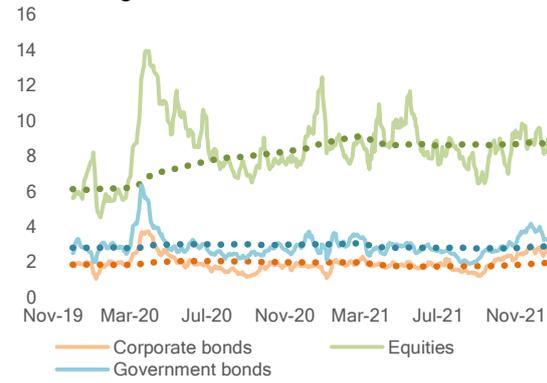


Note: Outstanding amounts of initial margin required and excess collateral received by EU27 and UK CCPs for derivatives (CCP.A, CC&G, European Central Counterparty N.V and KDPW data missing). in EUR bn. 1Q21 = 2 April 2021.
Sources: TRs, ESMA.

Chart 39

Settlement fails in EU CSDs

Increasing across asset classes

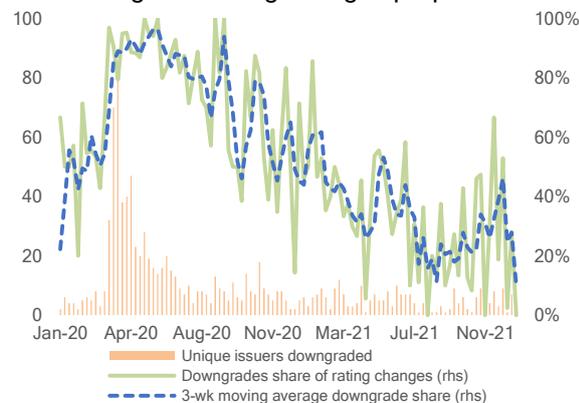


Note: Share of failed settlement instructions in the EEA30, in % of value, one-week moving averages. Missing data for some CSDs prior to mid-March 2020. Dotted lines represent one-year moving averages of the respective asset classes.
Sources: NCAs, ESMA.

Chart 40

Corporate issuers downgrades

Few downgrades but growing in proportion

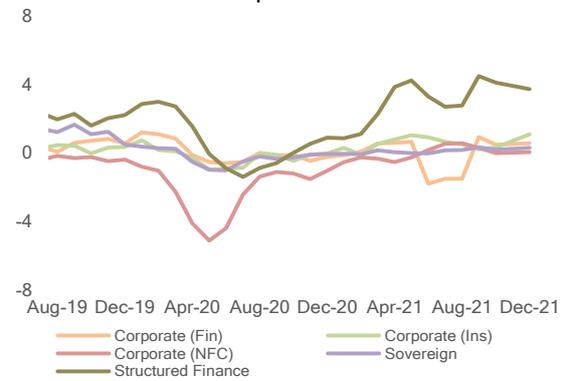


Note: Number of EEA30 corporate issuers with at least one bond downgraded, and ratio of downgraded corporate issues over upgrades and downgrades (3 week moving average). Issuers with same reported parent treated as one issuer.
Sources: RADAR, ESMA.

Chart 41

Credit ratings drift

Structured finance upwards drift accelerated



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

Increased market-based financing

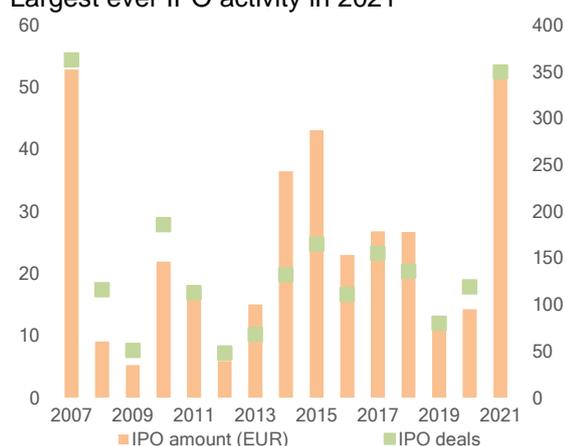
European capital markets continued to provide an important anchor for corporate financing. The annual growth rate of **market financing** of EA non-financial corporations remained high in 2Q21 (+ 20 % year-on-year, Chart 44), linked to easier market conditions that were in turn supported by an accommodative monetary policy. However, the growing reliance on market-based finance made the financial system more vulnerable to market corrections, leaving firms more exposed to secondary market shocks ⁽¹¹⁾.

Equities: a boom in IPOs

In a context of growing valuations and improved economic sentiment, the primary equity markets showed signs of exuberance in 2021, reaching levels unseen since 2014. Total equity issuance through IPOs and follow-on issuance in 2021 amounted to EUR 167 billion, around 65 % more than the previous year and 10 % below the record levels observed in 2014.

Chart 42

Number of IPOs and volumes
Largest ever IPO activity in 2021



Note: Number of IPOs in the EEA30 (rhs) and deal amount in EUR bn (lhs).
Sources: Refinitiv Eikon, ESMA.

The market conditions particularly fuelled activity in **initial public offerings (IPOs)**, which surpassed by 1 % the record levels observed in 2007, just before the Global Financial Crisis

(Chart 42). After the boom in 1H21, IPO issuance slightly slowed down but remained strong throughout the rest of the year. In 2H21, there were 167 IPOs (almost EUR 21 billion), marking a 37 % decline with respect to 1H21, yet doubling compared to 2H20. Technology continued to be the leading sector, accounting for 21 % (EUR 5 billion) of the total IPO market in 2H21, followed by the financial (19 % or EUR 4 billion) and the consumer cyclical sectors (16 % or EUR 3.4 billion). On a country level, the largest IPO amounts were raised by companies domiciled in Sweden (46 deals, EUR 6.5 billion), Norway (seven deals, EUR 2.2 billion) and France (19 deals, EUR 2.1 billion).

On the one hand, IPO activity was particularly propelled by the boom of Special Purpose Acquisition Vehicles (SPACs), which declined towards the end of the year as regulatory scrutiny around their use intensified. On the other hand, companies exploited the combination of three factors: growing stock valuations; the availability of cash, following years of accommodative monetary stance; and improved corporate earnings, related to the resurgence of economic activity. Market overvaluation and investor selectivity represent tangible risks in IPO markets, as reflected by the weak post-IPO performance of many firms globally ⁽¹²⁾.

While IPO activity was particularly strong throughout the year, **follow-on issuance** slowed down to a total of EUR 48 billion in 2H21, an 8 % decline with respect to 2H20, but still slightly higher than the average observed in the second halves of previous years (Chart 45).

Bonds: solid issuance

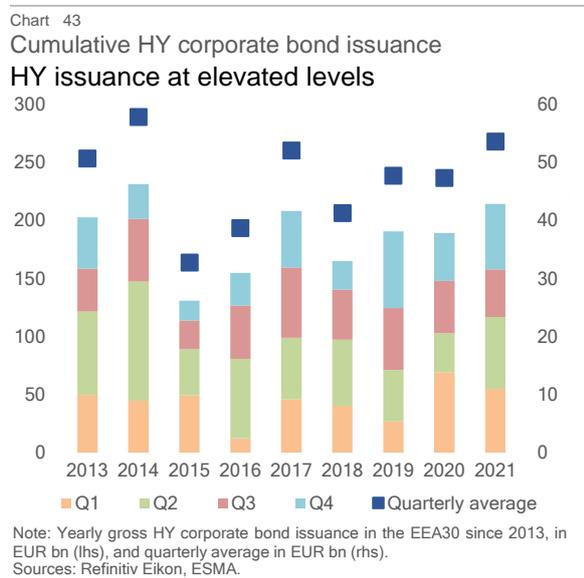
Corporate bond issuance in 2H21 remained high, mostly linked to easy market conditions, with risk-taking and search-for-yield strategies remaining the main drivers. While the effects of rising inflation were not immediately visible, sustained issuance amid stretched valuations added to the uncertainty around future market developments.

Short-term issuance was particularly strong in 2H21, surpassing the 5Y-MA by 2 % (EUR 355

⁽¹¹⁾ ECB, *Financial Stability Review*, November 2021.

⁽¹²⁾ Kinder, T. Lockett, H. and Morris, S., 'Half of this year's big IPOs are trading below listing price', *Financial Times*, November 2021.

billion) in 3Q21 and staying on par in 4Q21 (EUR 352 billion). The total long-term bond primary market size remained strong and in line with 2020 levels at EUR 667 billion (of which EUR 273 billion were non-rated bonds). **Investment grade** bond issuance continued to be robust at EUR 297 billion (– 20 % with respect to 1H21, but + 11 % compared to 2H20), accounting for 75 % of total rated bonds. With economic activity picking up in 2H21, AAA- to A-rated bonds recorded a 3 % decline with respect to 2H20 (EUR 134 billion), associated with reduced external financing needs of more profitable (Chart 46) European firms. Signs of exuberance were particularly visible in **high-yield** (HY) corporate credit markets, with bond issuance at EUR 97 billion in 2H21, reaching record levels compared with the past five years (Chart 43).



The amount of **outstanding corporate bonds** continued to grow to EUR 10 trillion (+ 1.5 % compared to 1H21), while credit quality further deteriorated, with the shares of IG and HY bonds amounting to 49 % (EUR 4.9 trillion) and 14 % (EUR 1.4 trillion) of the total respectively (the remaining 37 % are non-rated bonds). This reflects elevated indebtedness for both financial and non-financial corporations (Chart 47).

Against this background, concerns for debt sustainability remain high.

In 2H21, long-term issuance in EA sovereign bond markets stood at EUR 190 billion, with a significant drop in 4Q21. Nevertheless, outstanding levels of sovereign debt are substantially higher than in the pre-crisis period.

From an investor perspective, rising yields should lower the value of current bond holdings, making other type of deals more attractive. In 2021, investor reliance on securities that offer high ratings and protect against rising inflation has increased⁽¹³⁾. As such, **securitised products** have become an attractive alternative to corporate bonds for investors, with securitisation markets showing signs of revival. Industry statistics estimated the total gross issuance to be around EUR 48 billion in 3Q21, of which EUR 23 billion (or 49 %) were placed. This represents a 31 % increase from 2Q21 and an 18 % increase compared to 3Q20⁽¹⁴⁾. **Collateralised loan obligations** also saw a strong revival in 2021, with an issuance of EUR 39 billion (of which EUR 24 billion in 2H21)⁽¹⁵⁾. The economic recovery and increased business confidence also led to the strongest year ever for the **mergers and acquisitions** activity of EEA firms, with more than 12 000 transactions worth a total of around EUR 700 billion⁽¹⁶⁾.

SMEs: stable issuance

While access to finance has improved for **small and medium-sized enterprises (SMEs)** in Europe, their use of market-based instruments remained relatively low in 2Q21 and 3Q21⁽¹⁷⁾. In the secondary markets, trading volumes in SME shares reported by EEA-30 trading venues continued to improve in 2H21, amounting to a total of EUR 96 billion or 2 % of the total trading in shares on EEA-30 exchanges (Chart 48). After peaking in March, the trading volumes on SME Growth Markets receded to end-2020 levels⁽¹⁸⁾. In 2H21, they accounted for EUR 14.5 billion or 34 % of the total volumes in EEA share trading in multilateral trading facilities (Chart 49)⁽¹⁹⁾.

⁽¹³⁾ Tempkin, A. and Williams, C. E., 'Goldman Says Investors Should Rotate Into Securitized Debt From Corporate Bonds', Bloomberg, November 2021.

⁽¹⁴⁾ AFME securitisation Q3 2021 data snapshot.

⁽¹⁵⁾ Statistics according to JP Morgan data.

⁽¹⁶⁾ Source: Refinitiv Eikon and ESMA calculations.

⁽¹⁷⁾ ECB, *Survey on the access to finance of enterprises (SAFE)*, November 2021.

⁽¹⁸⁾ MiFID II/MiFIR introduced the possibility of registering a

multilateral trading facility operator as an SME growth market, if at least 50 % of the issuers with shares available for trading on the relevant segment have a market capitalisation of less than EUR 200 million.

⁽¹⁹⁾ The classification of SME issuers is based on 2020 market capitalisation. Only share issuers with a valid legal entity identifier for which the market capitalisation meets the relevant MiFID II conditions have been considered as SMEs. This implies an underestimation of the number of SME issuers and trading volumes.

Key indicators

Chart 44

Market financing

Continued positive growth

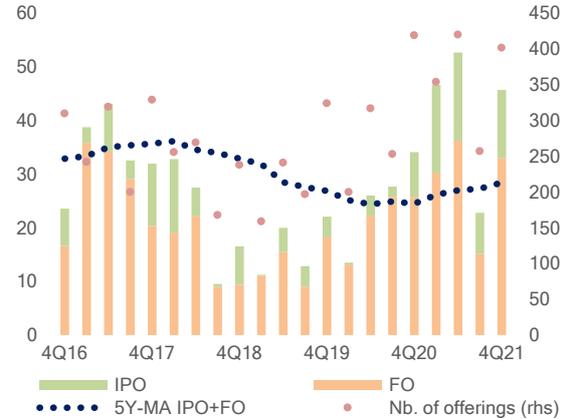


Note: Liabilities of EA non-financial corporations (NFC), by debt type as a share of total liabilities. Others include: financial derivatives and employee stock options; insurance, pensions and standardised guarantee schemes; trade credits and advances of NFC; other accounts receivable/payable. Mkt.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

Chart 45

Equity issuance

Record levels in 2021

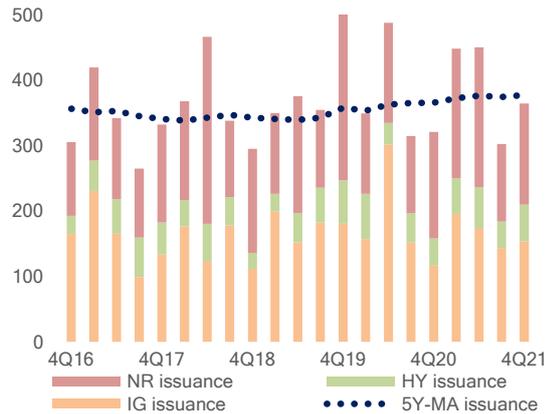


Note: Equity gross issuance in the EEA30 by type, EUR bn, and number of equity offerings. 5Y-MA=five-year moving average of the total value of equity offerings.
Sources: Refinitiv EIKON, ESMA.

Chart 46

Corporate bond issuance

Sustained issuance

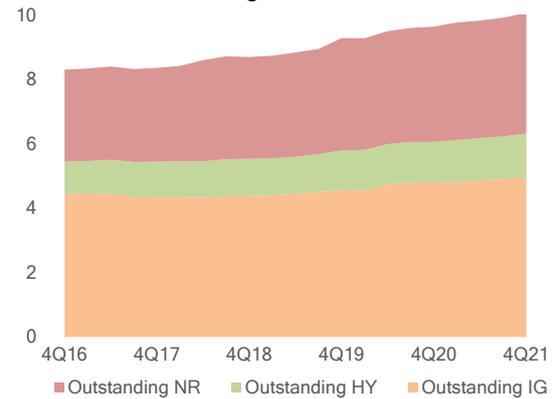


Note: Quarterly investment-grade (rating >= BBB-), high-yield (rating < BBB-) and non-rated corporate bond gross issuance in the EEA30, EUR bn.
Sources: Refinitiv EIKON, ESMA.

Chart 47

Corporate bond outstanding

Elevated outstanding debt levels

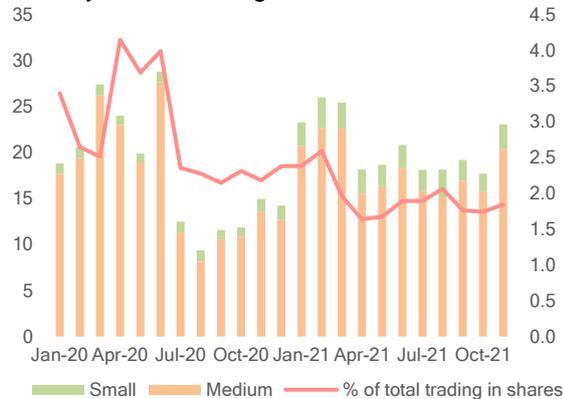


Note: Quarterly investment-grade (rating >= BBB-), high-yield (rating < BBB-) and non-rated corporate bond outstanding amounts, EUR tn. Maturities < 12 months are excluded.
Sources: Refinitiv EIKON, ESMA.

Chart 48

SME trading volumes

Broadly stable trading

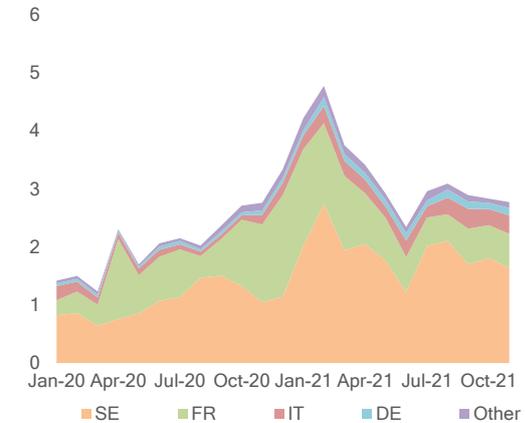


Note: Monthly trading volumes on EEA30 venues of SME shares, EUR bn (lhs), and % share of the total trading in shares (rhs). 'Small'=(0,20mn), 'Medium'=(20mn,200mn). Based on share market capitalisation in 2020.
Sources: FIRDS, FITRS, ESMA.

Chart 49

Trading volumes on SME Growth Markets

Volumes back to 2020 levels



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

Sustainable finance

ESG growth continues amid valuation concerns

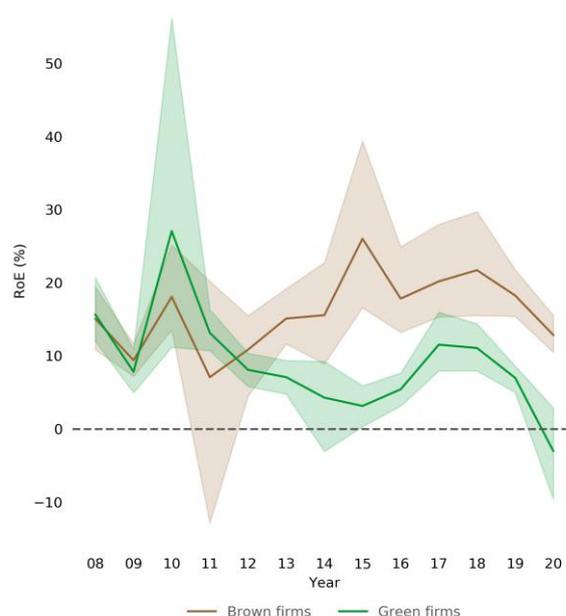
The growth in ESG markets and investing remained unabated, as investors continued to increase their allocation to sustainable investment products and vehicles. The AuM of ESG funds increased by 9 % between June and November 2021, taking the share of funds integrating a non-financial approach to almost 20 % of the total assets of publicly marketed funds ⁽²⁰⁾. Flows into ESG equity funds amounted to EUR 25 billion over the last five months, compared with net outflows of EUR 7 billion from their non-ESG peers. The strong performance of equity markets since the beginning of the year, and of ESG equity funds in particular, combined with an accommodative monetary policy stance, have provided a supportive backdrop to this broadening shift to sustainable investing.

As investors rushed into sustainable investment vehicles that were chasing too few assets, concerns over the possible overvaluation of green assets continued into the end of 2021. We examined the long-run return and equity price trends for around 2 200 companies, all of which have emissions information available for at least half of the years since 2008. We grouped firms into thirds, based on their respective carbon intensity ⁽²¹⁾: green firms are those whose carbon intensities are in the lowest third of all observations, while brown firms have carbon intensities in the highest third ⁽²²⁾.

The range in annual return on equity (RoE) across green firms has evolved relative to the distribution of RoE across brown firms (Chart 50). In the years 2008 to 2012, the fact that a firm was considered green or brown did not appear to be associated with a measurable difference in investment returns, as measured by RoE. However, since 2013 it appears that returns to investors buying green firm equity have

underperformed returns on brown firm equity, both consistently and in a statistically significant manner. The average green firm RoE was even less than zero in 2020, compared with brown firm RoE, which on average stood at approximately 12 % in the same year.

Chart 50
Return on Equity of green and brown firms
Green firm RoE consistently lower



Note: Annual RoE of firms for which greenhouse gas emissions data (disclosed or estimated) is available for at least seven years between 2008 and 2020 (inclusive). Brown (green) firms defined as firms whose carbon footprint in that year is above (below) the 67th (33rd) percentile across all firm-year observations. The horizontal line within each shaded range denotes the average RoE for that group of firms in that year, while shaded areas denote the 95 % confidence interval around the mean RoE in that year.
Sources: Refinitiv, ESMA.

Green bonds: evidence of a green risk premium

ESG bond markets saw similar developments to ESG fund assets, with a 19 % increase in the total

as independent observations and choose percentile cut-offs that are fixed (i.e. not time-varying). In other words, a firm can be classified as 'green' in one year, based on its carbon footprint in that period, and 'brown' in another year, if its carbon footprint significantly deteriorates. Given the sample size (2 100 firms, for which seven or more years of emissions data are available), boundary effects of the same firm frequently switching between 'green' and 'brown' across the years are unlikely to affect the findings.

⁽²⁰⁾ Morningstar, data and definition of sustainable investments (*Morningstar Sustainable Attributes*).

⁽²¹⁾ Carbon intensity is defined as total annual CO₂ and CO₂-equivalent emissions divided by annual turnover. Both direct emissions (Scope 1) and emissions arising from the generation of energy purchased by the firm (i.e. Scope 2 emissions) are included.

⁽²²⁾ Carbon intensities are a relative measure, insofar as they provide an (inevitably incomplete) indication of 'environmental efficiency', i.e. the emissions per unit of revenue. Therefore, we treat all firm-year observations

outstanding in the EU during the second half of 2021, driven primarily by green and social bonds (Chart 53). The issuance of sustainability-linked bonds saw the fastest rise: by 3Q21, more than EUR 68 billion of these bonds were year-to-date,⁽²³⁾ compared with less than EUR 15 billion for the previous year.

The increasing number of investors buying ESG assets (notably green bonds), together with growing evidence of a green risk premium – the ‘greenium’⁽²⁴⁾ in both primary and secondary markets⁽²⁵⁾ – may hold implications for ESG bond performance during times of rising inflation.

While a greenium implies comparatively lower costs of capital for ESG bond issuers, researchers tried to understand investors’ willingness to forego returns. The existence of a greenium is often attributed to an imbalance in supply and demand⁽²⁶⁾. An analysis of the underlying factors of this imbalance suggests that agents’ ESG preferences lead them to derive utility from holding green assets, thus adding to the typical utility generated by an increase in financial wealth⁽²⁷⁾.

A more stable and committed investor base may have several implications in times of higher inflation. A greater commitment to holding ESG assets such as green bonds can lead to a rising greenium, as investors of conventional bonds will require higher nominal yields to hold these securities. A lower sensitivity to price movements may also mean greater resilience for the valuation of these securities in the event of interest rate shocks. From this perspective, green bonds may also serve as an attractive hedging tool, especially for long-term investments⁽²⁸⁾.

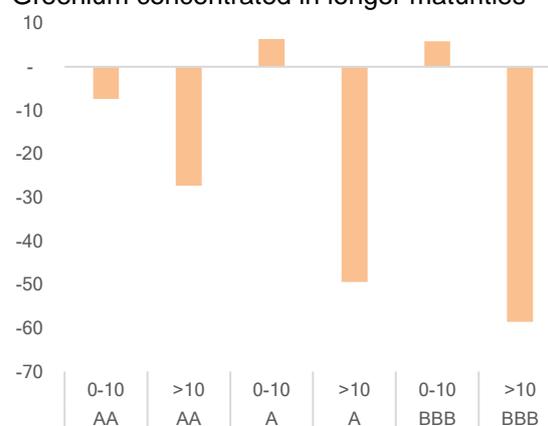
We looked at EEA-domiciled green bond issuers and compared their outstanding yields with conventional issuances⁽²⁹⁾. We found evidence of the existence of a greenium for bonds with a residual maturity of more than ten years, and that the greenium is proportional to the bonds’ credit risks (as measured by credit ratings). The

observed yield spreads range from 30 bps for AA-rated securities to 60 bps for BBB-rated securities, which is equivalent to a 25 % to 30 % discount on conventional bond returns (Chart 51). This appears to confirm the view that holders of green bonds are willing to forego some of their returns, in exchange for the utility of holding green assets. However, some of these estimates are driven by the sectoral composition of the two issuer samples, with green bond issuers mainly comprising firms from the financial (60 %), construction (20 %) and utilities (12 %) sectors⁽³⁰⁾.

Chart 51

Green v conventional bond yields

Greenium concentrated in longer maturities



Note: Yield-to-maturity differential (Greenium) between conventional bonds from green bond issuers and green bonds, by residual maturity (in years) and credit rating, in bps. Data as at November 2021.

Sources: Refinitiv EIKON, ESMA.

ESG funds less exposed to value stocks

The current environment of higher inflation and rising interest rates may have further differentiated the impacts on firm valuation, depending on their activities and financial characteristics. The differences in the portfolio compositions of ESG and non-ESG funds may

⁽²³⁾ Climate Bonds Initiative, *Sustainable Debt Summary – Q3 2021*, 2021. EUR/USD conversion rate = 1.15.

⁽²⁴⁾ ESRB, ‘Positively green: Measuring climate change risks to financial stability’, 2020.

⁽²⁵⁾ Loeffler, K.U. et al., ‘Drivers of green bond issuance and new evidence of the ‘Greenium’’, 2021.

⁽²⁶⁾ Haggerty, J., ‘How issuers can maintain the Greenium associated with green bonds’, GreenBiz, 2021.

⁽²⁷⁾ Pastor, L. et al., ‘Sustainable Investing in Equilibrium’, 2019.

⁽²⁸⁾ Arif, M. et al., ‘Diversifier or more? Hedge and safe haven properties of green bonds during COVID-19’, Australian National University, 2021.

⁽²⁹⁾ Our analysis is based on a sample of 10 375 bonds from EEA-domiciled firms, outstanding in November 2021, of which 10 097 are conventional bonds and 278 are labelled green bonds. 90 % of the bonds in our sample are issued by financial sector firms. The analysis focuses only on investment grade bonds; AAA-rated instruments are excluded due to low sample sizes.

⁽³⁰⁾ Robustness checks confirm the existence of a sizeable within-sector greenium for long-term debt securities when focusing on financial issuers. Similar evidence emerges when focusing on the other two sectors but lacks representativeness due to limited sample sizes.

thus give us some insights about fund performance in a rising inflation context.

To answer these questions, we investigated a dataset composed of almost 1 400 equity UCITS funds domiciled in the EU and investing in European large cap companies. For each fund, we retrieved several monthly characteristics, including whether the fund strategy was a sustainable investment (ESG fund), the fund size and aggregated information on the portfolio composition ⁽³¹⁾.

A first question concerns the exposure of these funds to value and growth stocks ⁽³²⁾. Value stocks generally perform better in an environment of higher inflation and interest rates, because of their lower reliance on borrowing – which becomes more costly in a rising interest rate environment – and their ability to deliver short-term profits. We observed that the average exposure to growth stocks is broadly similar between ESG and non-ESG funds, but the exposure to value stocks is greater for non-ESG funds (Chart 52). This suggests that the current market developments may create a more favourable environment for non-ESG funds, with all other characteristics being equal.

The sectoral composition of fund portfolios may also influence their returns. The MSCI Europe sectoral index performances ⁽³³⁾ show elevated returns since the beginning of the year for the energy sector (+ 33 %), financial services (+ 25 %), industrials (+ 21 %) and the consumer discretionary sector (+ 20 %). We also observed a greater average exposure to three of these sectors for non-ESG funds. However, a different picture emerges when looking at weighted averages. In this case, the data show a higher exposure to the consumer cyclical and energy sectors for non-ESG funds, but a higher exposure to the financial services and industrials sectors for ESG funds. It is therefore difficult to draw clear conclusions, based on sectoral exposures, as to the type of funds that may benefit from recent macroeconomic developments. However, between January and September, non-ESG funds raised their exposures to all four of these sectors, with a prevalence for the financial sector. On the contrary, ESG funds mainly increased

their exposure to the financial sector, while the shares of the three other sectors remained broadly stable. The aggregate exposure to the four sectors rose from 46.4 % to 49.2 % for non-ESG funds and from 46.0 % to 48.4 % for ESG funds.

Chart 52

Equity UCITS portfolio exposures

ESG funds less exposed to value stocks

	Strategy exposure			
	Average		Weighted Average	
	Non-ESG	ESG	Non-ESG	ESG
Growth	23.6 %	24.6 %	26.8 %	26.2 %
Value	30.4 %	22.1 %	27.6 %	20.6 %

	Sectoral exposure			
	Average		Weighted Average	
	Non-ESG	ESG	Non-ESG	ESG
Cons Cycl	12.9 %	10.7 %	13.4 %	10.2 %
Energy	3.9 %	2.3 %	3.5 %	1.8 %
Financial	15.1 %	14.6 %	14.8 %	16.2 %
Industrials	17.2 %	20.8 %	16.4 %	22.9 %

Note: EU equity UCITS investing in European Large Cap exposure to selected strategies and sectors as of September 2021. For September 2021, the sample is composed of 1 054 funds. 'Cons. Cycl'=Consumer Cyclical. Weighted averages based on fund size. Sources: Morningstar, ESMA.

⁽³¹⁾ Morningstar data as of November 2021. For each month between January 2021 and September 2021, we only keep funds with complete information on the sustainability characteristics of their investment strategy, their portfolio composition and their size. Since the funds do not necessarily report their portfolio information on a monthly basis, the sample is unbalanced.

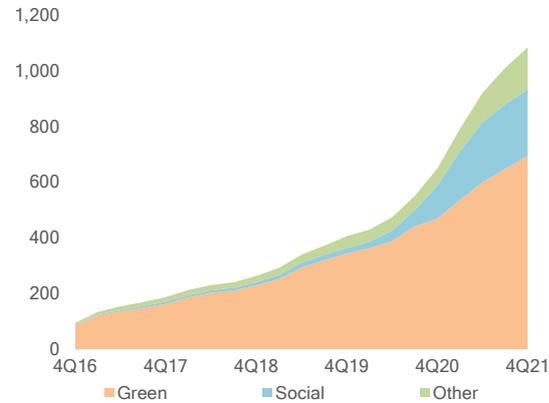
⁽³²⁾ 'Value stocks' refers to the shares of a company that appear to trade at a lower price relative to its fundamentals, while 'growth stocks' refers to company shares that are expected to grow at a rate significantly above the average growth for the market.

⁽³³⁾ Performances of the price indexes in euro between January 2021 and October 2021.

Key indicators

Chart 53

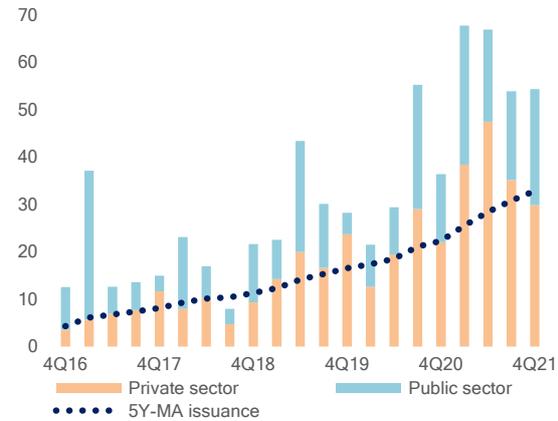
EU ESG bonds outstanding
Market size continued to increase



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

Chart 54

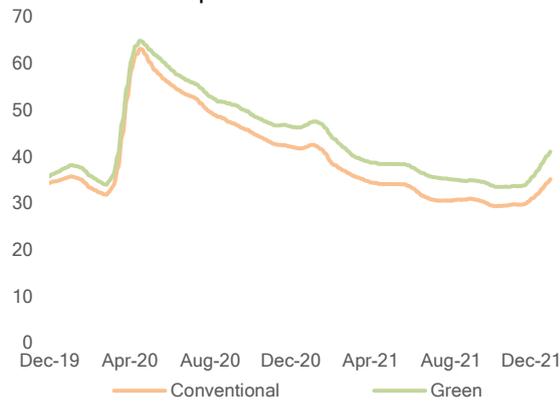
Green bond quarterly issuance
Lower issuance volumes in 2H v 1H



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

Chart 55

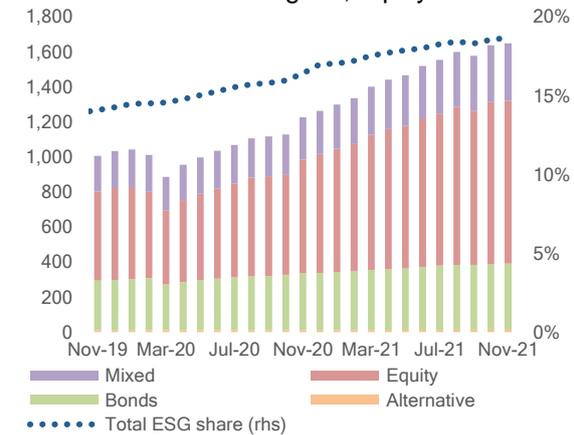
Corporate green bond and conventional bond liquidity
Stable bid-ask spread differential



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

Chart 56

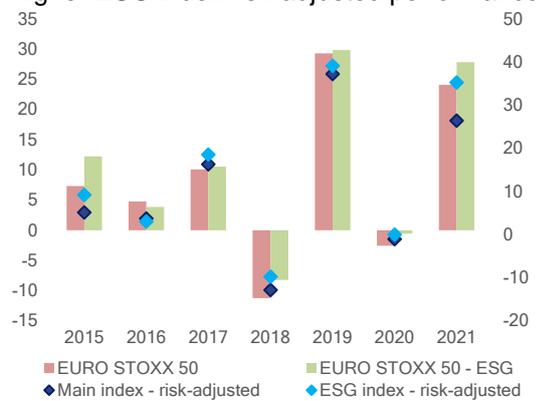
ESG fund assets
ESG funds continue to grow, equity dominates



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

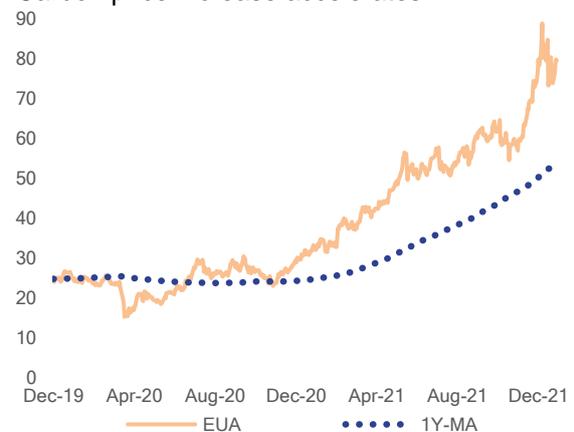
ESG leaders index risk-adjusted returns
Higher ESG index risk-adjusted performance



Note: Annual returns of the EURO STOXX 50 and EURO STOXX ESG Leaders 50 indices, in %. Risk-adjusted returns, on rhs, measured as Sharpe ratios. Current year data year-to-date. STOXX ESG Leaders are companies with a Sustainalytics ESG rating in the top 25%.
Sources: Refinitiv Datastream, ESMA.

Chart 58

Emission allowance prices
Carbon price increase accelerates



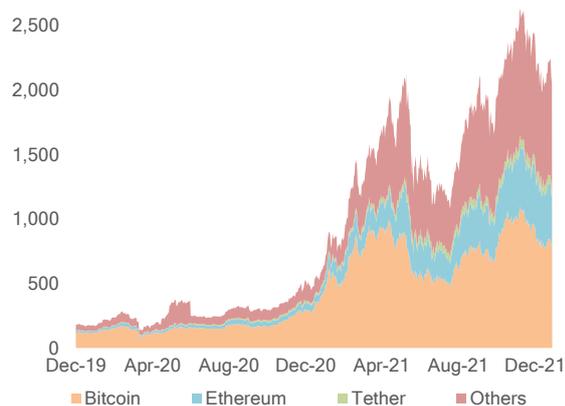
Note: Daily settlement price of European Emission Allowances (EUA) on European Energy Exchange spot market, in EUR/tCO2.
Sources: Refinitiv Datastream, ESMA.

Financial innovation

Market for crypto assets reaches new records

The total **market capitalisation** of crypto assets (CAs) reached a record EUR 2.6 trillion in November, before returning to below EUR 2 trillion in January. Bitcoin (BTC) led the market (with an average market share of 44 % in 2H21; Chart 59), followed by Ether (ETH), the next largest CA with a market share of nearly 20 % in 2H21. Though the prices of these assets reached all-time highs in November, both have since dropped by more than 30 %.

Chart 59
Crypto asset market capitalisation
All-time high in November



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

Several factors may explain the boom in CA markets. Current **macroeconomic conditions**, with extremely low interest rates and growing inflation expectations, make CAs particularly appealing to investors. This is because they offer high expected returns (between 3 % and 13 %), via DeFi⁽³⁴⁾, staking⁽³⁵⁾ or price appreciation. **Institutional adoption** is increasing – institutional investors’ portfolio exposure to CAs reaches approximately 1 %, according to a recent CoinShares survey⁽³⁶⁾ – and incumbent financial firms are launching or exploring CA products and

services, thereby signalling the growing acceptance of CAs as an asset class⁽³⁷⁾.

In November, the open interest on BTC futures contracts traded on regulated exchanges (CME, ICE) increased by 80 % over the previous month, after the US SEC approved BTC futures ETFs (Chart 65). The open interest for futures contracts remained higher than 1H21 levels. **European-listed ETPs** with underlying CAs reached a high in November, with EUR 16.8 billion in total AuM. However, the six largest ETPs recorded net flows of EUR 4 billion in 2H21 – a 1 % decrease compared to 1H21 (Chart 67).

The **volatility** of the two largest CAs (BTC and ETH) remained elevated compared to traditional assets such as equities and gold, though 30-day return volatility in 2H21 was far less pronounced compared to their peak values in July 2021 (down – 31 % and – 43 % respectively; Chart 65). High volatility notwithstanding, CAs may bring benefits in terms of portfolio diversification, given their relatively **low correlation with other asset classes** (Chart 60), although this correlation has been trending upward since the pandemic⁽³⁸⁾ ⁽³⁹⁾.

Chart 60
Price return correlations

Low correlation with other assets

	BTC	ETH	EQ	Gold	Corp	Gov
BTC	100%					
ETH	69%	100%				
EQ	29%	31%	100%			
Gold	16%	11%	12%	100%		
Corp	7%	9%	25%	19%	100%	
Gov	13%	13%	5%	24%	66%	100%

Note: Correlations of daily price returns from Jan 2020 - Dec 2021. BTC: Bitcoin to EUR exchange rate; ETH: Ethereum to EUR exchange rate; EQ: STOXX EUROPE 600 Price Index; Gold: S&P GSCI Gold Spot in EUR; Corp: ICE BofA Euro Corporate Bond Price Index; Gov: ICE BofA Euro Government Bond Price Index.
Sources: Refinitiv Datastream, ESMA.

Stablecoins (SCs) continued to outgrow the overall CA market, reaching a combined market capitalisation of EUR 143 billion by the end of 2021 (Chart 63), which is equivalent to 8 % of the entire EUR 1.8 trillion CA universe. The market

⁽³⁴⁾ Decentralised finance (DeFi) is a catch-all term for financial protocols built on peer-to-peer networks, such as the Ethereum blockchain; see ESMA Report on Trends, Risks and Vulnerabilities No 2, 2021.
⁽³⁵⁾ Staking is a process by which users commit assets to maintain consensus on ‘proof of stake’ blockchains in exchange for interest (rewards from transaction fees).
⁽³⁶⁾ Butterfill, J and Laughton-Scott A., ‘Institutional Crypto

Adoption: Three factors to watch’, CoinShares, October 2021.
⁽³⁷⁾ Oliver, J., ‘Investors warned that crypto ‘yield’ products are not bonds’, Financial Times, November 2021.
⁽³⁸⁾ Goldman Sachs Global Macro Research, *Crypto: A new asset class?*, No 98, May 2021.
⁽³⁹⁾ Adrian, T. et. al., ‘Crypto Prices Move More in Sync With Stocks, Posing New Risks’, IMF, January 2022.

remains highly concentrated, with Tether representing half of the total and the three largest SCs combined representing almost 90 %. While SC trading volumes represent only a small share of the total CA market capitalisation, they generally outpace those of non-SCs (Chart 64). Due to their characteristics (pegged price and exchangeability into fiat or other CAs), SCs are particularly suited for crypto lending (including through DeFi), contributing to their popularity among investors, because of the attractive potential returns of up to 10 %.

Although the CA market remains dominated by BTC, a shift in investor preference towards ETH⁽⁴⁰⁾ is underway. In 2021, ETH's market cap increased at three times the rate of BTC's (Chart 62). The drivers may be environmental concerns (considering ETH's transition to Proof of Stake) and the new ability of ETH holders to earn 'passive' income through 'staking', which is unavailable with BTC. ETH is also the most popular choice for an increasing number of tangible use cases, such as smart contracts and tokenisation – while BTC is mainly used for simple investment or payment transactions.

Textbox 3

Ethereum shifts to proof of stake

The ETH blockchain, which originated as a proof of work (PoW) consensus, is currently transitioning to proof of stake (PoS). This will lower fees for network users and drastically minimise its environmental footprint. However, the transition also raises operational and governance concerns for users of ETH's network. Consensus based on PoS is typically considered less secure than PoW. PoS could increase the risk of network forks or other consensus compromises.

A high concentration of token ownership may also weaken network governance under PoS. At present, the minimum requirement to run a validator node on ETH is 32 ETH (about EUR 110 000) – prohibitively expensive for retail investors and a barrier to proper decentralisation. ETH's network currently secures a value of EUR 156 billion in smart contracts.

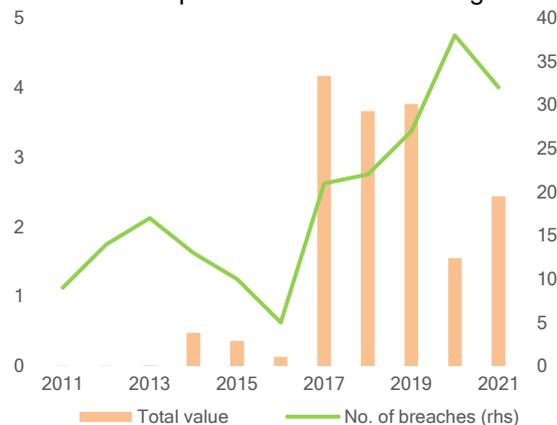
CAs require close scrutiny

As the CA market continues to expand, **risks to investors and financial stability** have also grown. Investor protection safeguards remain scarce to non-existent in most jurisdictions in the absence of relevant rules. While losses from **scams and protocol exploits** are on a downward trend since 2019, the number of breaches remains high, suggesting elevated

fraud levels. In 2021, at least 32 large scams and exploits involving CAs were identified, with losses of nearly EUR 2.7 billion (Chart 61).

Chart 61

Crypto asset scams and exploits over time
Scams and exploits down from 2017 high



Note: No. of breaches and total value lost in the market for CAs since 2011 (in EUR bn)

Sources: Crypto Head, ESMA

Increased CA exposure by traditional investors also creates interlinkages that raise **contagion risks**. This is particularly true for SCs: their aim (without guarantee) to redeem at 'par' displays features and vulnerabilities similar to MMFs. Tether, for example, holds around 50 % of its reserves (or EUR 27 billion) in commercial paper whose issuers are undisclosed (as of July). This raises concerns about **potential spillover** into the real economy in case a run on Tether⁽⁴¹⁾.

Hence, there is a growing realisation among regulators that CAs warrant closer scrutiny and regulatory response. In the EU, the MiCA and DLT pilot regime proposals provide a comprehensive regulatory and supervisory framework for CAs, including SCs. In the US, the report by the President's Working Group calls on Congress to address the risks of SCs⁽⁴²⁾. **Enforcement actions** continue. In June, the **UK FCA** issued a consumer warning and prohibited Binance – the world's largest crypto exchange – from operating in the UK. In September, **China's central bank** declared CA transactions illegal. In October, the US CFTC imposed a penalty on Tether for making untrue or misleading statements, following that of the NY Attorney General's Office in February⁽⁴³⁾.

⁽⁴⁰⁾ CoinShares, *Bi-Monthly Fund Manager Survey*, November 2021.

⁽⁴¹⁾ Tether attestation [report](#), July 2021.

⁽⁴²⁾ President's Working Group on Financial Markets, FDIC, and the Office of the Comptroller of the Currency,

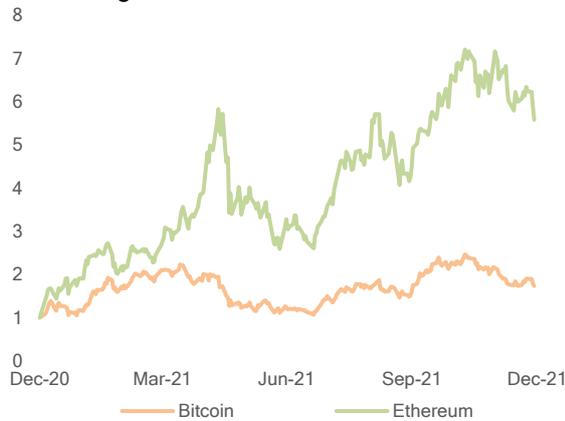
[Report on Stablecoins](#), November 2021.

⁽⁴³⁾ [Financial Conduct Authority press release](#), June 2021. Olcott, E. and Szalay, E, 'China expands crackdown by declaring all crypto activities 'illegal'', September 2021. [NY Attorney General press release](#), February 2021; [CFTC press release](#), October 2021.

Key indicators

Chart 62

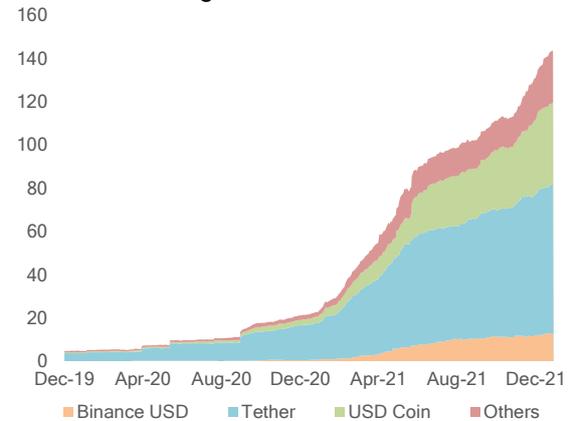
Market capitalisation growth
Ether outgrows Bitcoin



Note: Market capitalisation of Bitcoin and Ethereum indexed to January 2021. Sources: CoinMarketCap, ESMA.

Chart 63

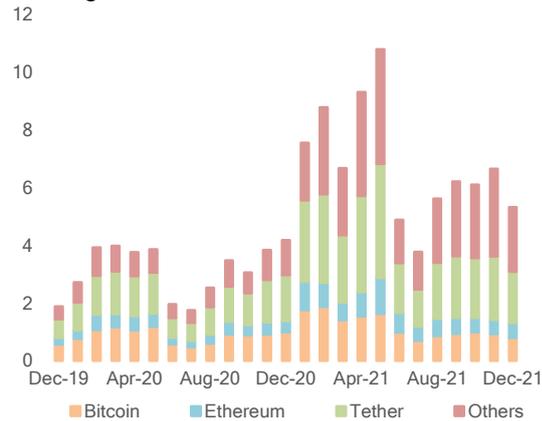
Stablecoin market capitalisation
Stablecoins' surge continues



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

Chart 64

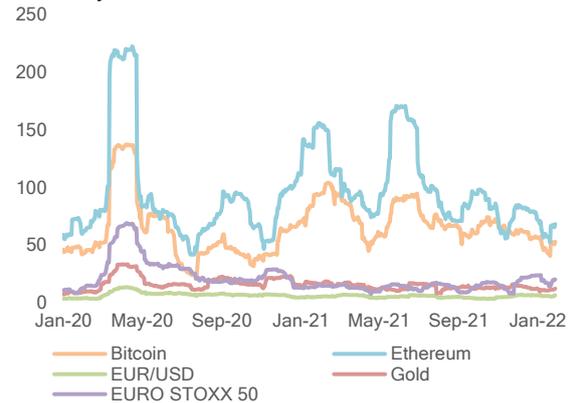
Crypto asset trading volume
Trading volumes stabilise



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

Chart 65

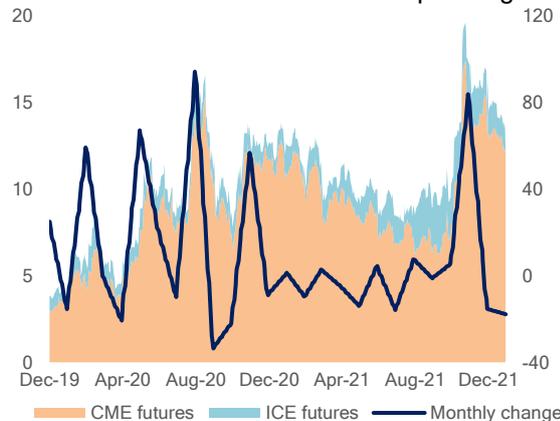
Crypto asset return volatility
Volatility remains elevated but decreases



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

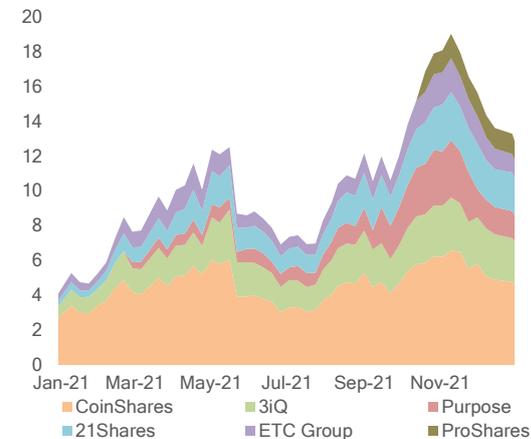
Open interest on Bitcoin futures
Use of Bitcoin futures started to expand again



Note: Total open interest in Bitcoin futures, in thousand of contracts, and change in monthly average total open interest, in %. Sources: Refinitiv Datastream, ESMA.

Chart 67

AuM of crypto ETPs traded in Europe
Four-fold increase in ETP assets



Note: AuM of select ETPs trading on European exchanges (USD bn). ProShares is not available in the EU however, it is included for comparison. Sources: CoinShares, 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

€STR	Euro short-term rate
2H(Q)21	Second half (quarter) of 2021
AIF	Alternative Investment Fund
AIFM	Alternative Investment Fund Manager
AIFMD	Directive on Alternative Investment Fund Managers
AMF	Autorité des Marchés Financiers
AuM	Assets under Management
BTC	Bitcoin
bps	basis points
CA	Crypto Asset
CCP	Central counterparty
CFD	Contract for differences
CME	Chicago Mercantile Exchange
CNAV	Constant net asset value
Consob	Commissione Nazionale per le Società e la Borsa
CRA	Credit rating agency
CSD	Central securities depository
DLT	Distributed ledger technology
DeFi	decentralised finance
EA	Euro area
EBA	European Banking Authority
ECB	European Central Bank
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
EONIA	Euro Overnight Index Average
ESA	European Supervisory Authority
ESG	Environmental, Social and Governance
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
ETF	Exchange-traded fund
ETH	Ether
ETS	Emissions-trading system
EU	European Union
Euribor	Euro Interbank Offered Rate
FCA	Financial Conduct Authority
FinTech	Financial technology
FSB	Financial Stability Board
GDP	Gross domestic product
SC	Stablecoins
HY	High yield
ICE	Intercontinental Exchange
ICO	Initial coin offering
IG	Investment grade
IOSCO	International Organization of Securities Commissions
IMF	International Monetary Fund
IPO	Initial Public Offering
IRD	Interest-rate derivative
LVNAV	Low-volatility net asset value
MiFID _{-II}	Directive on Markets in Financial Instruments
MiFIR	Regulation on Markets in Financial Instruments
MMF	Money market fund
MTF	Multilateral trading facility
NAV	Net asset value

NCA	National Competent Authority
OTC	Over the counter
RoE	return on equity
ppt	Percentage point
PRIIP	Packaged Retail and Insurance-based Investment Product
RegTech	Regulatory technology
SEC	Securities and Exchange Commission
SMEs	Small and medium-sized enterprises
SSM	Single Supervisory Mechanism
SupTech	Supervisory technology
TR	Trade Repository
TRV	Report on trends, risks and vulnerabilities
UCITS	Undertakings for Collective Investment in Transferable Securities
VNAV	Variable net asset value

Currencies and countries abbreviated in accordance with ISO standards

