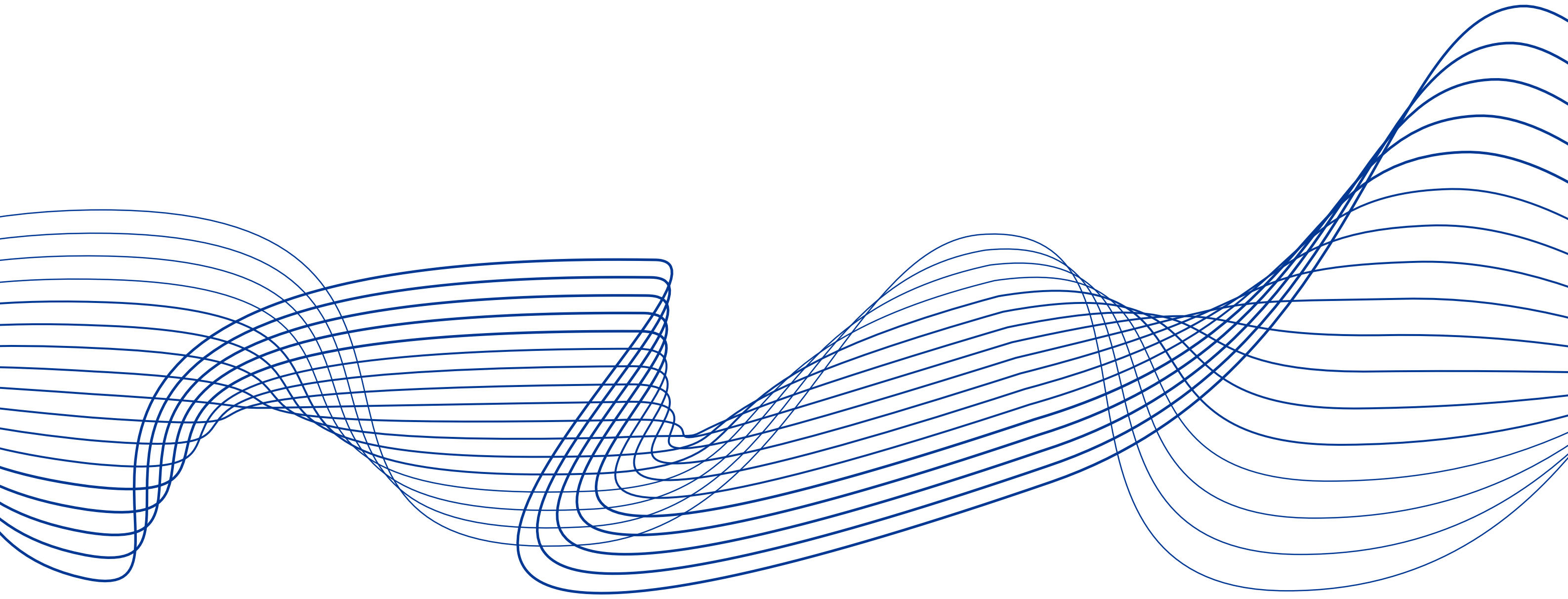
Annual Report

2021



ESRB
European Systemic Risk Board
European System of Financial Supervision

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Foreword

Christine Lagarde, Chair of the European Systemic Risk board

I am very pleased to present the 11th Annual Report of the European Systemic Risk Board (ESRB), covering the period between 1 April 2021 and 31 March 2022. The ESRB Annual Report is an important part of the ESRB's communication framework. It aims to ensure transparency and accountability with regard to how the ESRB delivered on its mandate and is addressed to co-legislators in the European Union and the European public at large.

The year 2021 was initially characterised by a decline in financial stability risks related to the coronavirus (COVID-19) pandemic as the economic recovery in the EU gained strength and balance sheet risk for firms and households gradually eased. However, towards the end of the year renewed supply chain disruptions and energy price increases challenged the burgeoning recovery and fuelled global inflationary pressures.

The Russian invasion of Ukraine is a humanitarian tragedy that has also caused a severe shock to the European economy. While the European financial system's direct exposures to Russia are limited, second-round effects have implications for economic growth prospects. The surge in energy and commodity prices on account of the war compounded global inflationary pressures, leading to a reassessment of the path of monetary policy in major economies. The invasion also increased the level of cyber risk, which had been building up across all financial infrastructures.

Meanwhile, medium-term vulnerabilities in housing markets continued to rise unabated throughout the review period. Against this backdrop, the ESRB issued warnings or recommendations to seven countries. The ESRB's analysis highlighted vulnerabilities relating to (i) the potential overvaluation of residential real estate, (ii) the level of household indebtedness, (iii) growth in housing loans, and (iv) signs of a loosening of lending standards.

The ESRB also recommended the establishment of a pan-European systemic cyber incident coordination framework to assist in ensuring the early detection of such an incident.

Throughout the review period, the ESRB continued its work to strengthen the EU macroprudential framework for banks and contributed actively to other prudential work to strengthen the financial sector at large. In particular, the ESRB published a concept note that outlines its views on how to make the macroprudential framework for banks fit for the next decade. A key proposal is to enrich the EU's legal framework with borrower-based measures for residential real estate loans. The ESRB also delivered an in-depth analysis of the usability of banks' capital buffers and put forward a new conceptual framework for assessing the macroprudential policy stance.

As regards the wider financial system, the ESRB issued a recommendation aimed at addressing persisting vulnerabilities in money market funds. The ESRB also responded to the European Commission's targeted consultation on the review of the EU's central clearing framework. It also published its views on the Commission’s proposals to review Solvency II and the Alternative Investment Fund Managers Directive.

The ESRB also examined broader risks that could affect the stability of the financial system, with a first exploration of the implications of private sector crypto-asset markets and decentralised finance applications. Together with the European Central Bank, the ESRB also published a joint report mapping the impact of climate change on EU financial firms through various drivers.

During the review period, several dear and valued colleagues left their roles and new appointments were made. I would like to warmly thank Jens Weidmann, the former President of the Deutsche Bundesbank, Ignazio Visco, Governor of the Banca d’Italia and Pierre Wunsch, Governor of the Nationale Bank van België/Banque Nationale de Belgique, for their contributions to the work of the ESRB Steering Committee, and Javier Suarez for his insights as Chair of the Advisory Scientific Committee (ASC). At the same time, I would like to warmly welcome François Villeroy de Galhau, Governor of the Banque de France, Mário Centeno, Governor of the Banco de Portugal, and Lars Rohde, Governor of Danmarks Nationalbank, as new members of the ESRB Steering Committee and Loriana Pelizzon as the new Chair of the ASC.

Christine Lagarde
ESRB Chair

Executive summary

Risks to financial stability have perceptibly increased since the Russian invasion of Ukraine and were significantly higher at the end of the review period than a year earlier.[1] The economic impact of the war in Ukraine, in combination with the tightening of financial conditions on the back of the ongoing normalisation of monetary policy, is weighing on the recovery from the coronavirus (COVID-19) crisis. Prolonged high inflation and deteriorating growth prospects on account of the strong increase in energy, food and commodity prices and supply chain disruptions are leading to an increase in the cost of financing and are reducing debt servicing capacity. The confluence of these developments and their possible mutual amplification have increased uncertainty and the probability of a materialisation of tail risk scenarios.

These more recent developments contrast with the trends prevailing in 2021, which were characterised by a gradual, albeit at times stalling, recovery from the COVID-19 crisis and a decline in near-term financial stability risks. The recovery of the EU economy from the pandemic gradually reduced the risk of balance sheet stress in the non-financial corporation (NFC) sector and spillovers of NFC vulnerabilities to banks. However, vulnerabilities continued to rise across markets for equity and risky assets as well as in the residential real estate (RRE) market, where stretched valuations compounded the risk of price corrections over the medium term.

In the second half of 2021, new variants of the coronavirus, continued pandemic-related supply chain disruption and rising commodity and energy prices resulted in rising inflation globally. These price pressure compounded pandemic-related vulnerabilities and posed challenges to the burgeoning recovery (Box 1 discusses vulnerabilities stemming from high inflation). The early part of 2022 was characterised by marked corrections across bond and equity markets on the back of reassessments of the path of monetary policy in the United States and the euro area.

Russia's invasion of Ukraine constituted a severe shock that added to the scars left by the COVID-19 pandemic. While direct exposures of the EU financial sector to Russia and Ukraine are contained, it may be affected by second-round effects on account of a deterioration in growth prospects, deteriorating investor and consumer confidence and a potential correction in asset prices. The Russian invasion also increased the risk of cyberattacks, which had been building up over time across all financial infrastructures.

To address growing vulnerabilities in the RRE sector, the ESRB issued warnings and recommendations to seven countries. Warnings were addressed to the competent ministers of five countries with newly identified vulnerabilities that had not been sufficiently addressed: Bulgaria, Croatia, Hungary, Liechtenstein and Slovakia. Recommendations were sent to the competent ministers of two other countries: Germany and Austria. After these recommendations had been issued, the authorities in Germany and Austria announced new measures to address vulnerabilities in the RRE sector. The ESRB also published an assessment of compliance with recommendations issued in 2019.

To address the rising risk of systemic cyberattacks, the ESRB also recommended the establishment of a pan-European systemic cyber incident coordination framework. Early

[1] The review period for this report runs from 1 April 2021 to 31 March 2022.

coordination and communication in the event of a cyber incident could help ensure the early detection of and reaction to such incidents. Some aspects of this recommendation were already at an advanced stage of implementation by the time of the Russian invasion of Ukraine, for instance the monitoring of cyber incidents having potential implications for financial stability.

Over the last twelve months, the ESRB contributed to strengthening the macroprudential framework for banks. The ESRB provided its views in response to the European Commission's call for advice on the review of that framework. As part of its proposals, the ESRB suggested that the EU's legal framework be enriched with borrower-based measures (BBMs) for RRE loans. The ESRB also provided in-depth analysis of the usability of banks' capital buffers and put forward a new conceptual framework for the macroprudential policy stance, which involved comparing systemic risks with the policy measures taken to address them. The ESRB also continued to monitor the macroprudential measures adopted by countries in the European Economic Area (EEA).

As regards the wider financial system, the ESRB issued a recommendation aimed at addressing persistent vulnerabilities in money market funds (MMFs) – which had become apparent once again at the start of the COVID-19 pandemic – and responded to the European Commission's targeted consultation on the review of the EU's central clearing framework. That last contribution built on the ESRB's response to the consultation by the European Securities and Markets Authority (ESMA) on determining the systemic importance of UK central counterparties (CCPs) and their clearing services, which was also published during the period under review. The ESRB continued to provide adverse scenarios for stress tests carried out by the European Supervisory Authorities (ESAs) and published a report on the financial stability implications of International Financial Reporting Standard 17 (IFRS 17) on insurance contracts. The ESRB also published its views on the Commission's proposals to review Solvency II and the Alternative Investment Fund Managers Directive (AIFMD).

Moreover, the ESRB took further steps aimed at tackling "hybrid risks" – i.e. more general risks that could also affect the financial sector. The ESRB established a high-level group to explore the scope and necessity of future analytical work on the systemic implications of private sector crypto-asset markets and decentralised finance (DeFi) applications for the stability of the EU's financial sector, paving the way for an assessment of the need for policy work in this area. Together with the European Central Bank (ECB), the ESRB also published a report mapping the impact of climate change on EU financial firms through various drivers.

The ESRB continued to evaluate the implementation of its past recommendations. Finally, in line with the ESRB's accountability and reporting obligations, the Chair of the ESRB attended a public hearing on 1 July 2021 before the Committee on Economic and Monetary Affairs of the European Parliament (ECON) and held two confidential virtual meetings with the Chair and Vice-Chairs of ECON to discuss risks to financial stability. The ESRB also organised a number of conferences and workshops (including a conference celebrating the tenth anniversary of its establishment) in order to foster discussions on macroprudential policy.

1 Systemic risks in the financial system of the EU

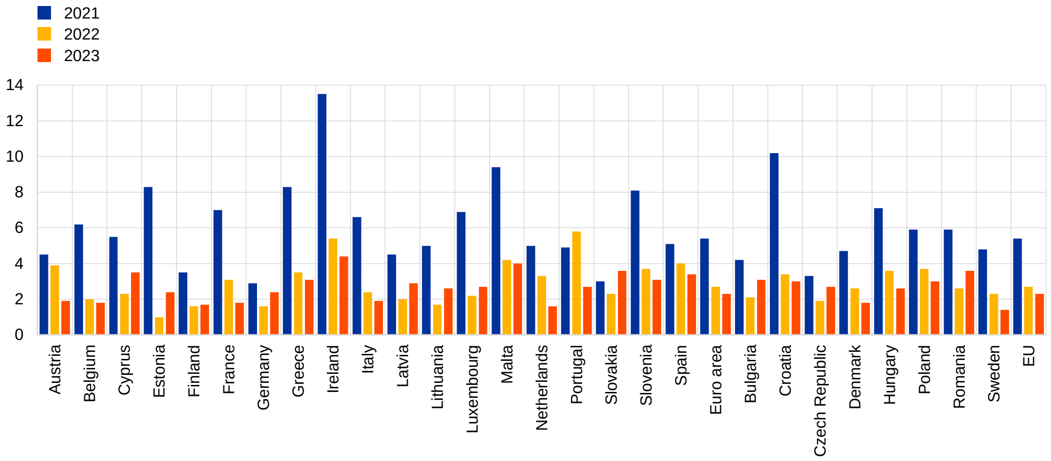
1.1 General outlook

Over the course of the review period, near-term risks related to the pandemic gradually declined, while medium-term cyclical vulnerabilities in the non-financial private sector and financial markets continued to rise. Thanks to the roll-out of vaccinations, continued broad-based public support measures, improved targeting of social-distancing measures and economic adaptation to the pandemic, the recovery of the EU economy progressed during 2021 (Chart 1). Concomitantly, the risk of balance sheet stress in the NFC sector and the risk of spillovers to banks declined. In contrast, vulnerabilities continued to build in financial markets, as well as the RRE market, where stretched valuations (amid rising household indebtedness) compounded the risk of price corrections over the medium term. The second half of the year was marked by the emergence of new variants of the coronavirus (Chart 2), continued pandemic-related supply chain disruption and energy price increases. These near-term headwinds resulted in rising inflationary pressures around the world, compounded vulnerabilities relating to the pandemic and generally posed challenges to the burgeoning recovery (see Box 1 on vulnerabilities stemming from inflation). Finally, during the last few months of 2021 and in early 2022 financial markets reassessed the expected path of monetary policy tightening in the United States and other advanced economies, with repercussions on valuations in bond and equity markets.

Chart 1

GDP growth in 2021 and forecasts for 2022 and 2023

(annual percentage changes)

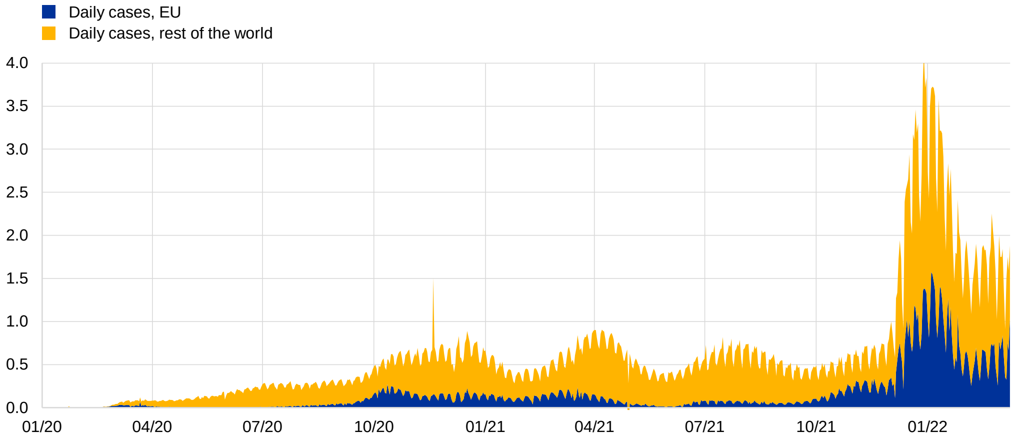


Sources: European Commission Winter 2022 Economic Forecast and ESRB calculations.

Chart 2

COVID-19 cases, daily variation

(millions)



*Sources: **Johns Hopkins University** data and ESRB calculations.*

As of March 2022, the ESRB regards Russia's invasion of Ukraine as a severe shock of uncertain scope and duration, which may have long-term consequences with the potential to reshape trade and financial relations in the global economy. The war in Ukraine has significantly increased uncertainty and led to a surge in energy and commodity prices, a pronounced correction in asset prices and additional supply chain disruption. This not only led to a deterioration in the macroeconomic outlook for the EU but also increased risks to financial stability on account of a multiplication of tail risk scenarios. The new challenges posed by the conflict have compounded the scars left by the COVID-19 pandemic – most notably the rise in corporate and sovereign debt. Moreover, the war has also increased the level of cyber risk, which had been building over time across all financial infrastructures.

1.2 Developments in financial markets

Buoyancy in financial markets continued in 2021, underpinned by improving economic conditions. Against the background of the economic recovery from the COVID-19 crisis, investors' search for yield[2] continued in 2021, resulting in (i) stretched equity valuations in several market segments[3], (ii) compressed NFC bond spreads amid increasing issuance, and (iii) stronger issuance activity in leveraged loan markets. The risk of an abrupt broad-based asset price correction increased towards the end of 2021 owing to heightened uncertainty about the inflation outlook and prospective monetary policy responses, as well as mounting geopolitical tensions.

The surge in inflation and shifting market expectation regarding the path of monetary policy tightening in early 2022 contributed to higher long-term government bond yields in several major markets, a widening of corporate spreads and losses in equity markets. As regards

[2] Against the background of the recovery, this search for yield reflected both (i) the decline seen in real yields following the rise in inflationary pressures and (ii) the ample liquidity that was available to investors.

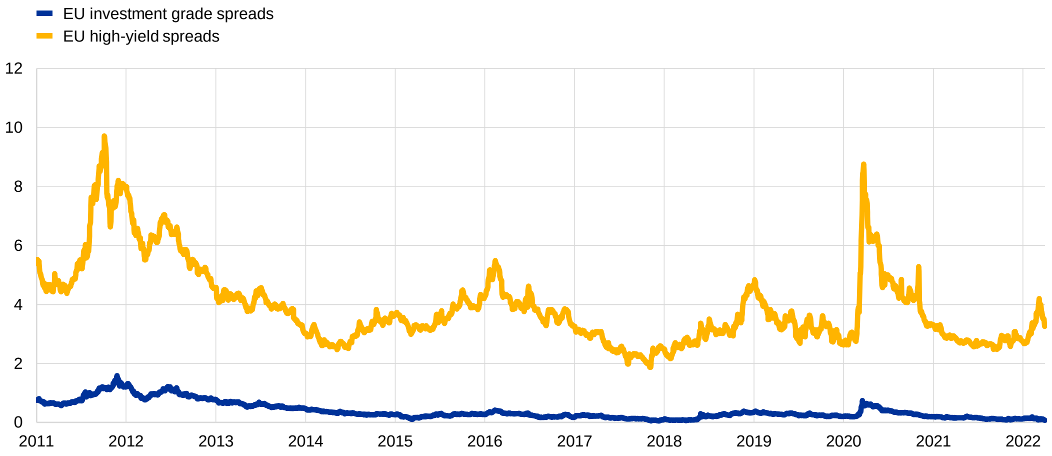
[3] This momentum in equity markets was noticeably strengthened by the increased leverage and risk-taking of non-bank financial intermediaries.

longer-dated bonds, US and German ten-year government bond yields both increased sharply between the end of 2021 and the end of March 2022, reaching 2.3% and 0.5% respectively. Corporate yields were also affected, with spreads starting to widen again (Chart 3) amid large volumes of high-yield bond issuance in the course of 2021. Moreover, the turnaround in bond markets had a marked impact on equity markets, with future cash flows being discounted at a higher rate. Major stock price indices suffered losses – although the downward correction in stock prices was modest relative to the extent of the possible overvaluation. At the end of March 2022, the S&P 500 was still about 40% above its pre-pandemic level (i.e. end of 2019), showing that there was scope for significant further falls (Chart 5). As of March 2022, stock market valuations were still stretched in the United States, while European valuations were broadly in line with their historical average (Chart 4).

Chart 3

Bond yield spreads – high yield and investment grade

(percentages)

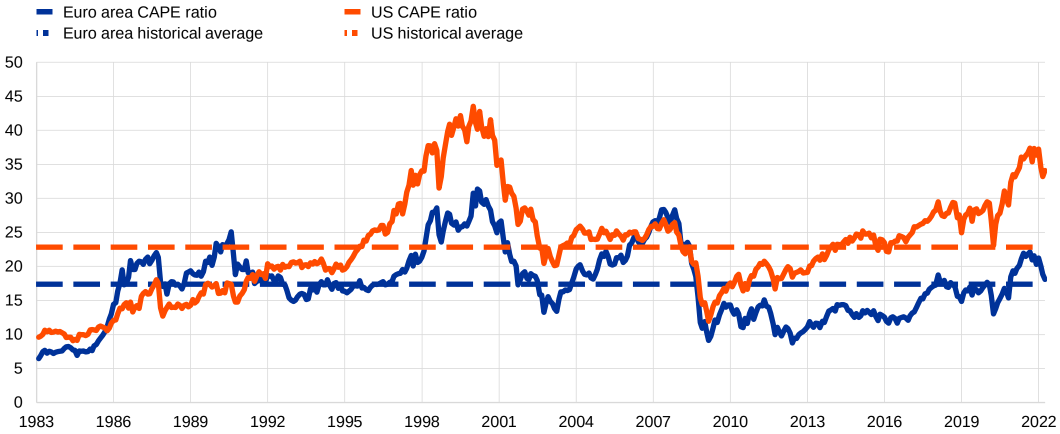


Sources: Bloomberg and ESRB calculations.

Chart 4

Euro area and US cyclically adjusted price-to-earnings (CAPE) ratio and historical averages since 31 December 1982

(ratio)

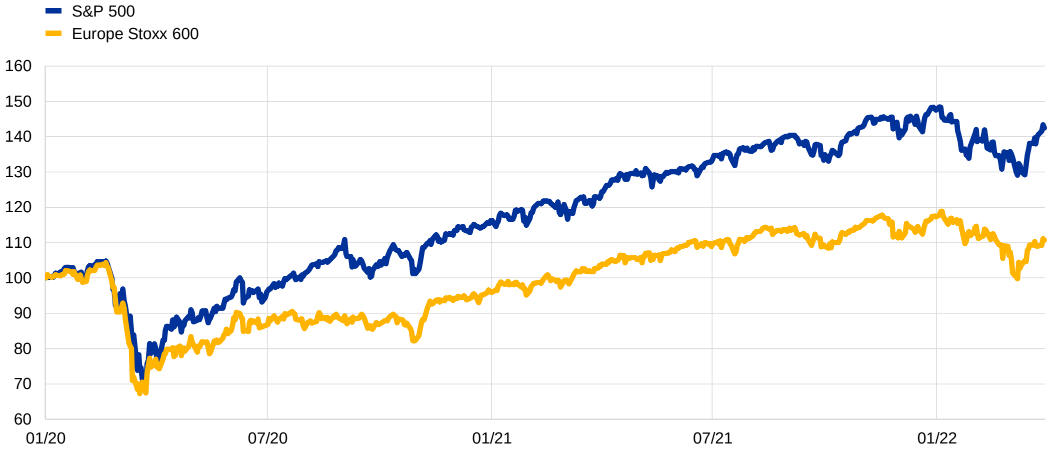


Sources: Datastream and ESRB calculations.

Chart 5

Equity indices

(index: January 2020 = 100)



Sources: Bloomberg and ESRB calculations.

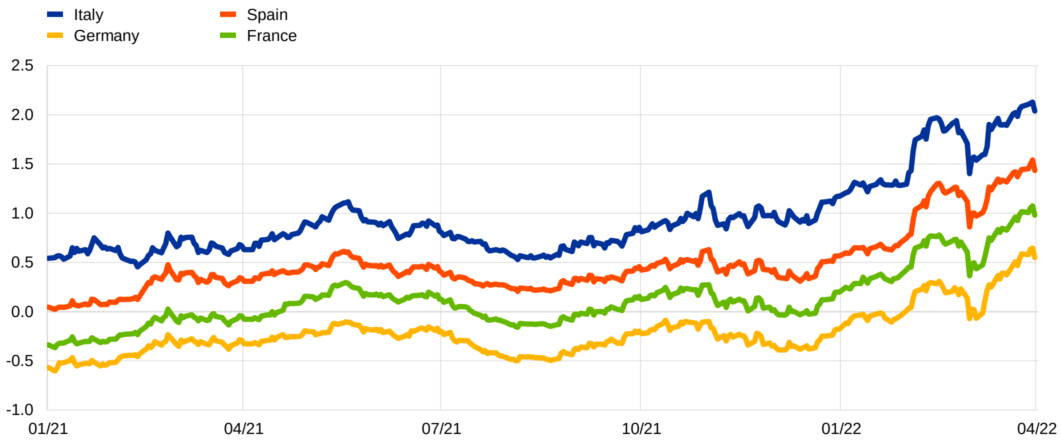
The Russian invasion of Ukraine caused a significant rise in volatility in financial markets and a pronounced correction in asset prices. It initially put an end to the trend of rising yields for US and euro area ten-year government bonds (Chart 6), but the resulting declines were then reversed in subsequent weeks. The start of the conflict also triggered a decline in equity prices. This notwithstanding, the risk of further abrupt asset price corrections remained severe, as equity valuations were based on the assumption of a moderate impact of the war in Ukraine on global growth as well as on the assumption that the path of monetary tightening expected by markets would be sufficient to gradually reduce inflation rates to central bank targets within two years.

Against this background, as of March 2022, the ESRB considers the materialisation of the risk of further abrupt asset price corrections to crucially depend on the duration and scope of the war and its impact on global economic growth and inflation dynamics.

Chart 6

Ten-year sovereign bond yields

(percentages)



Sources: Bloomberg and ESRB calculations.

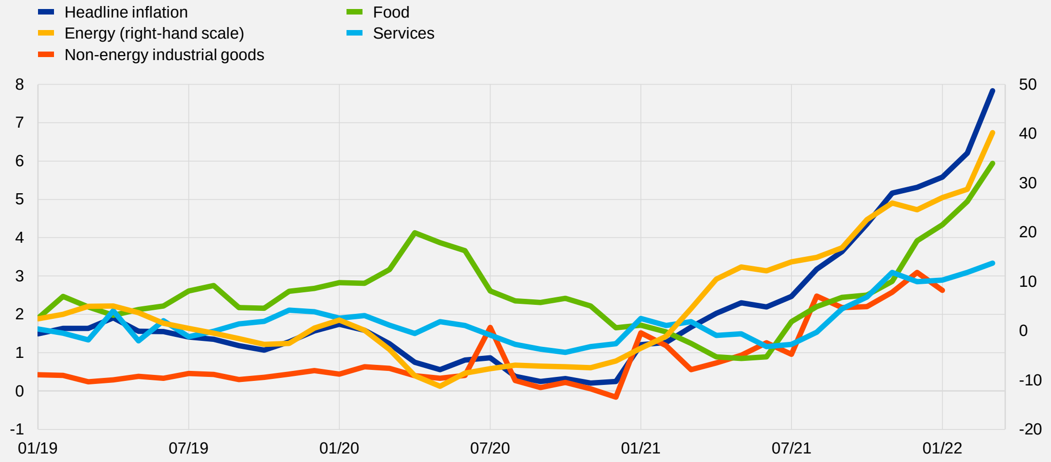
Box 1
Inflation and market vulnerabilities

Inflation in the EU and other advanced economies rose sharply over the review period, driven mainly by higher energy and commodity prices and supply chain disruptions (Charts A and B). In March 2022 headline inflation in the EU stood at 7.8%, up from 1.7% one year earlier. The main driver of that increase in headline inflation was a surge in energy prices (including fuel, electricity and gas prices). Energy prices rose sharply owing to increased demand in the aftermath of COVID-19 lockdowns, the outbreak of the war in Ukraine and reductions in supply. Food prices also rose rapidly, reflecting high input costs, temporary disruptions to logistics and a volatile climate.

Chart A

EU inflation rates

(annual percentage changes)

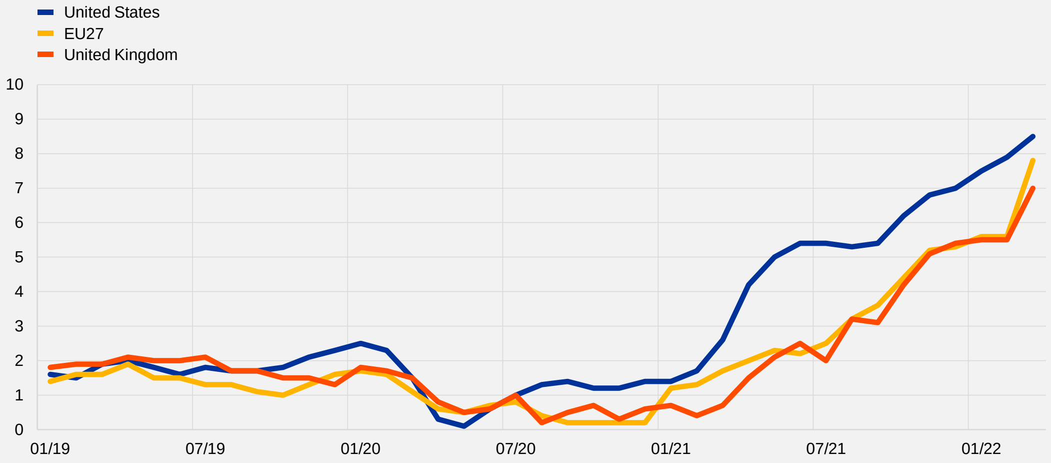


Source: Datastream.

Chart B

Inflation in major economies

(annual percentage changes)



Source: Bloomberg.

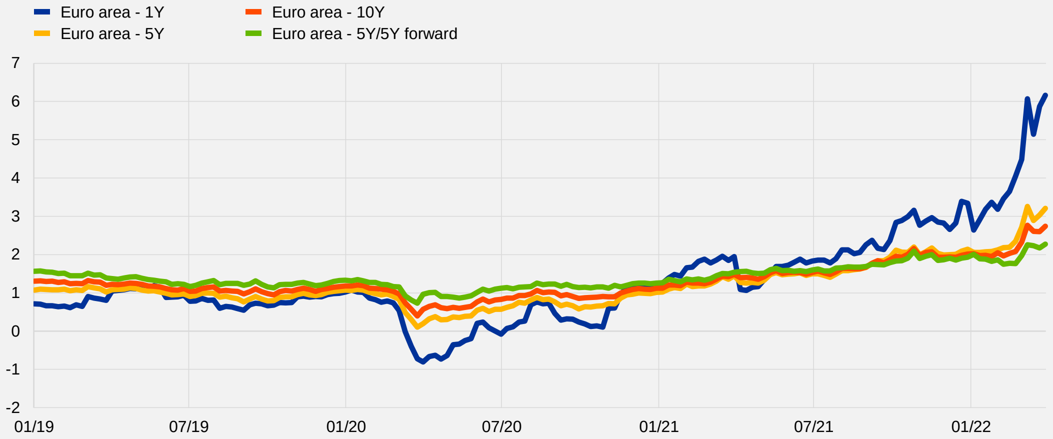
Core inflation excluding energy and food also increased in the EU in 2021 and early 2022. Significant price increases were observed for large numbers of goods and services, indicating that price pressures had become more broad-based. As a result, most measures of underlying inflation rose over the review period. The increases in the various measures of underlying inflation were, however, more moderate than the price increases recorded for energy and food items.

Market-based inflation expectations for the United States and the euro area rose sharply over the review period. The increases were particularly significant for short-term inflation expectations (Charts C and D). Longer-dated inflation expectations also rose in 2021, but those increases were less pronounced. Medium and long-term inflation expectations for the euro area stabilised close to the 2% mark in the first months of 2022.

Chart C

Market-based inflation expectations in the euro area

(annual percentage changes)

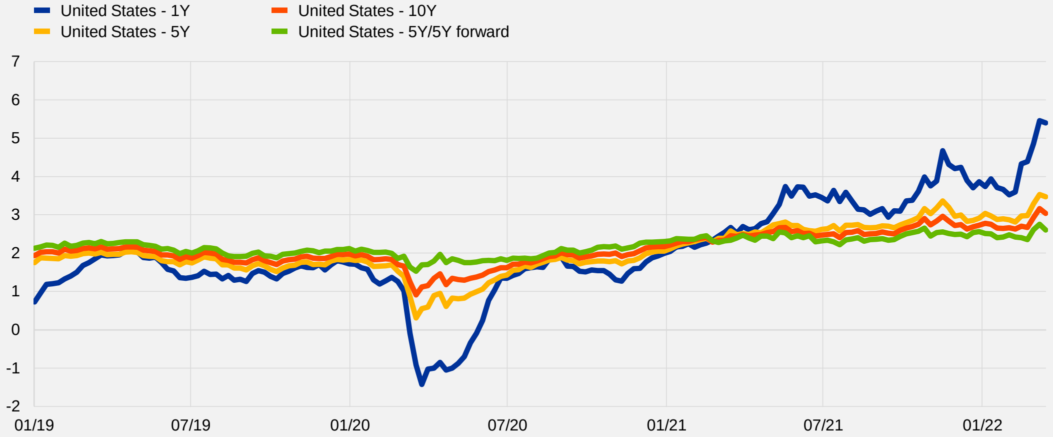


Source: Datastream.

Chart D

Market-based inflation expectations in the United States

(annual percentage changes)



Source: Datastream.

The increasing inflation recorded in 2021 led to new financial stability considerations. First, a prolonged period of high inflation may trigger uncertainty in financial markets (particularly bond markets), in turn exerting upward pressure on the risk premia that are embedded in asset prices. Sizeable mark-to-market losses may then ensue for financial institutions and sectors with large relevant exposures. Furthermore, sharp repricing in financial markets can potentially trigger large and abrupt outflows from investment funds. Such outflows have the potential to amplify asset price corrections. Second, high levels of inflation reduce real household income and corporate profit margins, thereby weighing on growth prospects and financial stability. Third, high price pressure in the economy may also trigger capital outflows, which may exert depreciating pressure on the currency. This, in turn, would further accelerate inflationary pressures. As part of its work on the identification of risks to financial stability the ESRB has been monitoring these developments as they had the potential to further aggravate existing vulnerabilities, for instance in the real estate market.

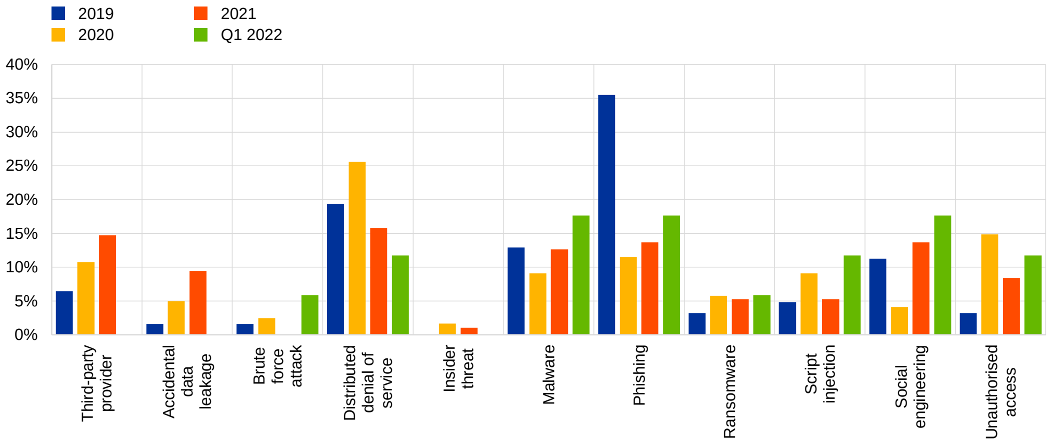
1.3 The risk of systemic cyber incidents

Systemic cyber incidents (caused intentionally or unintentionally) represent an increasing threat to the financial sector. In the past, intentional attacks were mostly due to the malicious activity of criminal groups seeking the payment of a ransom. Over recent years, however, cyberattack strategies have become more diverse and are now often aimed at disrupting the provision of entire service supply chains (Chart 7). A 2021 report by the European Union Agency for Cybersecurity (ENISA) pointed to an increase in organised cyberattacks on IT supply chains in the period since 2020.[4] Moreover, publicly available data suggest that in February 2022 the financial sector became the second most targeted sector at a global level (after healthcare).[5]

Chart 7

Cyber incidents by type, 2019 to the first quarter of 2022

(percentages)



Sources: ECB and ESRB calculations.
Note: Cyberattacks in banks supervised under the SSM by type of attack as a percentage of the total.

The risk of widespread disruption increased during the review period, not least on account of the war in Ukraine. The majority of cyber incidents in banks supervised under the Single Supervisory Mechanism (SSM) between 2019 and the first quarter of 2022 were recorded in 2020 (Chart 8), and the number of cyberattacks that banks have reported to ECB Banking Supervision has not increased since the Russian invasion of Ukraine. However, it is likely that some recent

[4] See “**Threat Landscape for Supply Chain Attacks**”, ENISA, 2021.

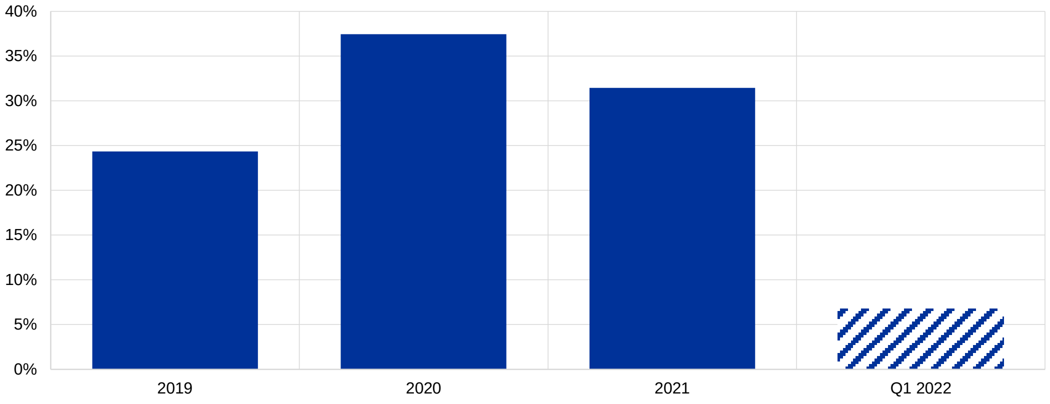
[5] In February 2022 “Finance and insurance” and “Fintech” combined were the largest target group after “Human health and social work”. See “**February 2022 Cyber Attacks Statistics**”, Hackmaggedon, March 2022.

cyberattacks were already initiated several months ago, but were activated only recently. With that in mind, as of March 2022 there is still considerable uncertainty regarding the number of Russian cyberattacks that may have been initiated during the review period but had not been activated or had not yet been detected by the end of it, as well as regarding the severity of such attacks. Despite this uncertainty, authorities enhanced their monitoring, bearing in mind the well-known example of the 2017 "NotPetya" cyber incident, which spread globally after having initially infected Ukrainian banks and caused significant disruption to critical infrastructure and public services in the country.[6]

Chart 8

Cyber incidents per year, 2019 to the first quarter of 2022

(percentages)



Sources: ECB and ESRB calculations.
Note: The chart shows the distribution of cyber incidents reported by banks supervised under the SSM between 2019 and the first quarter of 2022 as a percentage of the total over that period.

Over the last few years, structural factors (e.g. rapid digitalisation of the economy, increasing reliance on cloud services and the cyber insurance protection gap[7]) have increased the likelihood of more frequent and costly non-intentional cyber incidents, especially as results of operational failures. The growing importance of cloud services may give rise to concentration risk in the financial system: while spending on outsourced cloud services nearly doubled between 2018 and 2019, rising from 3% to 6% of total IT outsourcing expenditure, 85% of all significant banks in the SSM report using outsourced cloud services. The risk of cyber incidents also rose due to the increase in remote working arrangements, the still-evolving digitalisation of banking services and the higher risk of unintended incidents, e.g. caused by human error. Despite the potentially systemic and cross-border nature of cyber risk, cyber insurance still accounts for only a small share of the global non-life insurance market: data limitations and a poor understanding of cyber risks on the part of both underwriters and policyholders remain major obstacles to greater growth in this area and are hampering the closing of the cyber insurance protection gap.[8]

[6] It could be argued that, after Wannacry, the NotPetya virus was the clearest illustration of the risk of a major cyberattack, while the impact of the virus showed the resilience of financial institutions to this kind of attack.

[7] The cyber insurance protection gap is the difference between economic and insured losses in relation to cyber incidents.

[8] See "**Financial Stability Review**", ECB, November 2021.

1.4 Balance sheet stress in NFCs

Near-term risks in the non-financial private sector declined over the course of 2021 against the background of the ongoing economic recovery and improvements in corporate profit expectations. The debt ratio of the euro area NFC sector fell in the second and third quarters of 2021 after rising during 2020.[9] In addition, corporate revenues broadly recovered in 2021 on the back of the rebound in economic activity, low financing costs and continued fiscal support. Nevertheless, the last quarter of 2021 saw a slowdown in economic activity owing to pandemic-related supply chain bottlenecks, labour shortages and significant energy price increases, which were compounded by increases in COVID-19 infection rates and associated containment measures.

Notwithstanding the phasing-out of fiscal measures, corporate insolvencies remained below pre-pandemic levels on aggregate, but pockets of vulnerability remained. 2021 saw gradual phasing-out of pandemic-related policy support measures, facilitated by the rapid progress of vaccination campaigns and, accordingly, the reopening of countries' economies. However, increased uncertainty on account of resurgent infection rates and new social distancing measures introduced in the second half of 2021 led some countries to extend a significant percentage of their fiscal support until mid-2022.[10] In spite of the scaling-back of fiscal support, bankruptcy declarations in the EU were 21.96% below pre-pandemic levels in the fourth quarter of 2021, having remained below those levels since the start of the pandemic (Box 2 discusses corporate insolvencies against the background of the evolution of fiscal support measures). However, at the end of the review period, the most vulnerable and highly leveraged firms were increasingly being challenged by the impact of the war in Ukraine.

The invasion of Ukraine has multiplied tail risk scenarios and significantly compounded macroeconomic risks. Weakening confidence, additional supply chain disruption and higher energy and commodity prices could all have a severe impact on growth through declines in real household income and corporate profit margins. At the end of the review period, the ESRB contends that this negative effect on growth could be particularly severe if the war is protracted and the scope of the sanctions imposed on Russia are widened further (e.g. by including oil and natural gas imports to the EU). The materialisation of such a tail risk scenario would significantly exacerbate risks to the NFC sector and – albeit to a lesser extent – household sector balance sheets. This would also be happening at a time when constraints on expansionary macroeconomic policies are more severe than they were at the start of the COVID-19 pandemic.

1.5 Bank asset quality

In line with the improving situation in the NFC sector, concerns relating to possible spillovers to banks eased in the period under review. The profitability of EU banks improved in the course of 2021 and exceeded pre-pandemic levels by the end of the reporting period. However, this mostly reflected a marked increase in fee and commission income and, most notably, a decline in impairment charges, which may not be sustainable trends. Looking forward, the positive impact

[9] The "debt ratio of the euro area NFC sector" is the ratio of debt securities and loans of NFCs to GDP; see the Statistical Data Warehouse on the **ECB's website**.

[10] The fiscal support that was withdrawn in the course of 2021 was equivalent to 6.85% of 2019 GDP, while the support that is scheduled to be withdrawn by mid-2022 amounts to 8.58% of 2019 GDP. Countries considered here are those addressed by Recommendation ESRB/2020/8.

of rising interest rates on banks' net interest income could be counterbalanced by a weakening of credit demand and rising impairment charges in the context of an economic slowdown and a deterioration in borrowers' debt-servicing capacity. Moreover, key structural challenges to the European banking system (i.e. high cost-to-income ratios, overbanking and the rising cost of closing sizeable digitalisation gaps) continue to weigh on earnings expectations, thereby reducing loss-absorption capacity.

The quality of banks' assets improved in the course of 2021, with banks reporting lower non-performing loan (NPL) ratios (Chart 9a), but pockets of vulnerability remained.[11] The aggregate NPL ratio fell to 2.0% in the fourth quarter of 2021, down from 2.1% in the third quarter of 2021 and 3% in the first quarter of 2020.[12] Loans in IFRS 9 Stage 2 accounted for 8.9% of total loans in the fourth quarter of 2021, up from 8.7% in the third quarter (Chart 9b). AnaCredit data also show an increase in forborne credit as a share of total credit over the course of 2021, which is another early sign of deterioration. Moreover, the asset quality of loans benefiting from support measures remained a concern.[13] The NPL ratio for loans covered by public guarantee schemes in the context of the COVID-19 crisis increased to 3.1% in the fourth quarter of 2021, up from 2.4% in the third quarter. Similarly, the NPL ratio for loans with expired moratoria increased to 5.5% in the fourth quarter (up from 4.9% in the third quarter). Moreover, Stage 2 loans accounted for 22.5% of total pandemic-related publicly guaranteed loans in the fourth quarter, up from 20.1% in the third quarter (and 11.7% in the fourth quarter of 2020) (Chart 9c); Stage 2 loans accounted for 25% of total loans with expired moratoria in the fourth quarter, up from 24% in the third quarter. Based on AnaCredit data, the amount of provisioning for Stage 2 loans as a share of total loans has not changed significantly since the end of 2019, despite the deterioration in underlying credit quality during the pandemic. This implies that there could be pockets of under-provisioning at some banks and exposure to severely affected sectors, so the risk of losses materialising remains elevated. In this context, it is worrying that the report on the 2021 Supervisory Review and Evaluation Process (SREP) found evidence of insufficiently strong credit risk practices in "particular" banks. The overall SREP score improved for only 4% of significant institutions (SIs) and was downgraded for 32% of SIs.

[11] Figures based on EBA Risk Dashboard data for the fourth quarter of 2021 unless otherwise stated. The risk dashboard is based on a sample of risk indicators from 161 European banks (unconsolidated number of banks, including 30 subsidiaries). The sample of banks is reviewed annually by competent authorities and adjusted accordingly. This can cause breaks in the time series. In particular, from the first quarter of 2020 onwards, EU aggregates no longer include figures for UK banks, but do include them for subsidiaries of UK banks in EU countries.

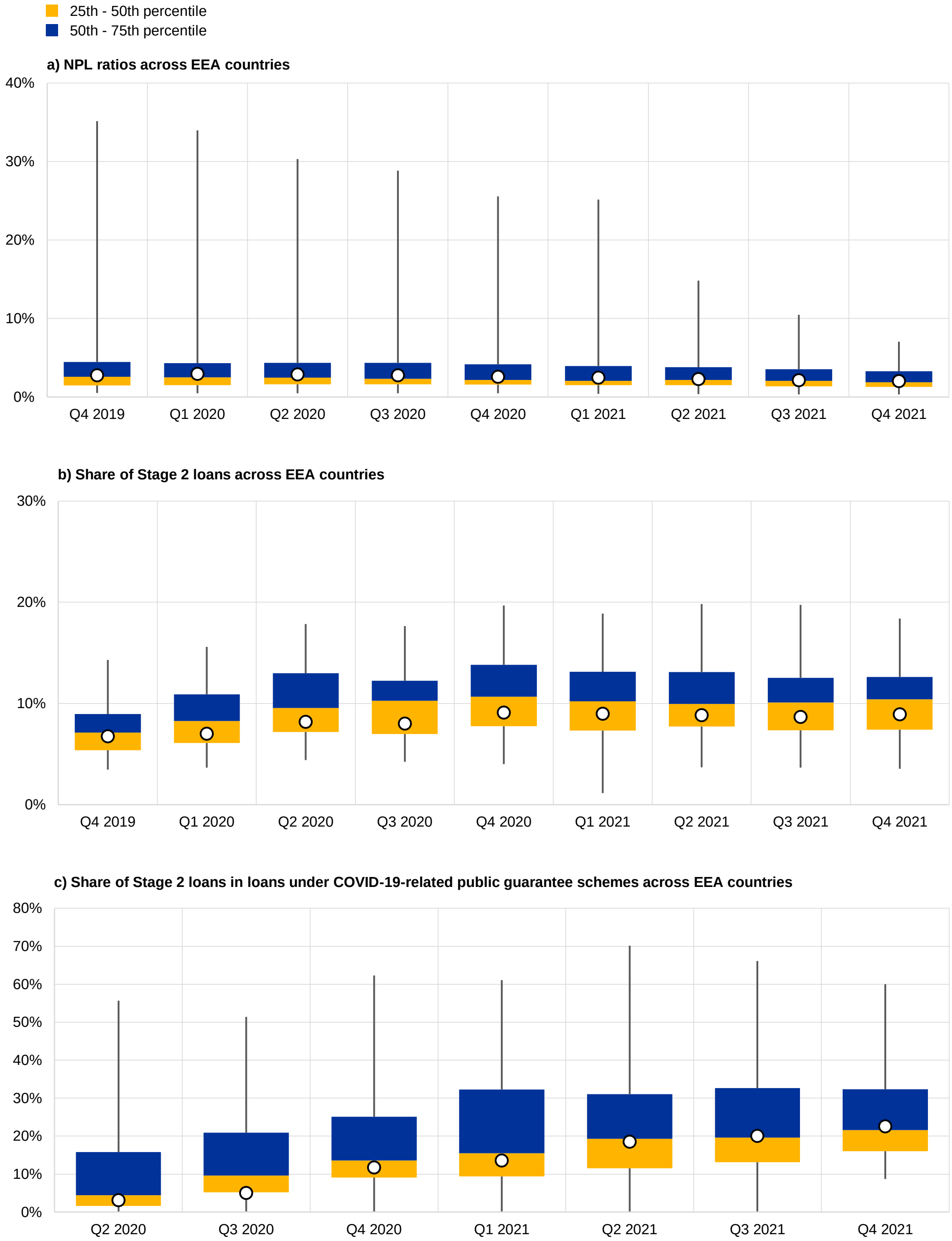
[12] In 2021 NPL ratios were lowered by large disposals of legacy NPLs by banks in Italy and Greece.

[13] The share of loans under public guarantees (relative to the total loan book) at EU level in the fourth quarter of 2021 was 1.9% (€373 billion), while the share of loans with expired moratoria was 3.6% (€704 billion). The share of loans under moratoria at EU level in the fourth quarter of 2021 was 0.06% (€12 billion); this was down from €50 billion in the third quarter of 2021 and down 95% since the first quarter of 2021. Given the pronounced decrease in the total amount of loans under moratoria over the course of 2021, NPL and Stage 2 loan ratios are not discussed for this sample.

Chart 9

NPL ratios and Stage 2 loans across EEA countries

(percentages)



Sources: EBA risk dashboard and ESRB calculations.
Note: The box plots illustrate the distribution of country-level ratios, while the whiskers identify minimum and maximum values. The white dots represent the EU weighted average of the country-level ratios.

At the end of the review period, the impact of the war in Ukraine was seen as a potential source of renewed deterioration in the quality of banks' assets, while some banks were still

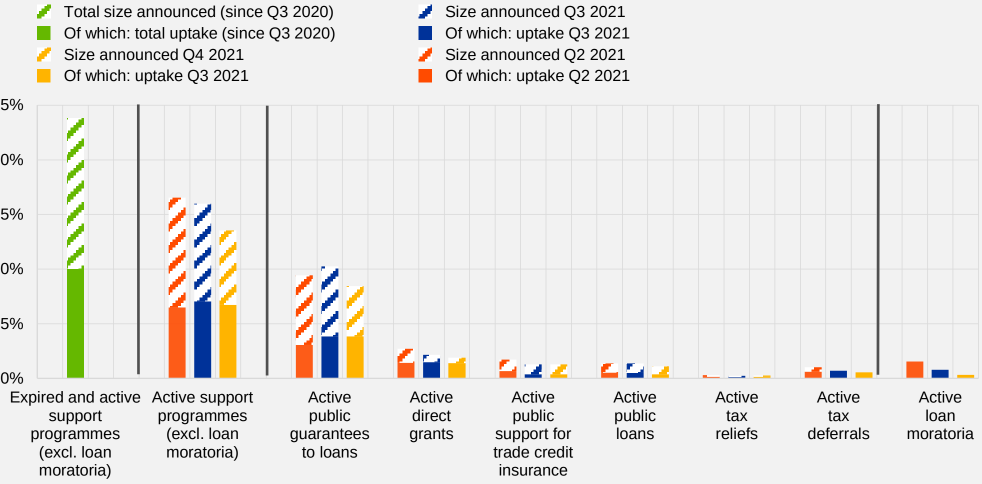
dealing with pandemic-related asset quality issues. While only a handful of large banks are exposed to Russia and/or Ukraine through subsidiaries and other owned entities, several banks are strongly exposed to the fuel and mineral sectors, where declining activity could weaken asset quality and lead to a deterioration in the capacity to service debt. More generally, as of March 2022, the war is seen as potentially weighing on economic growth and could result in the EU sliding into a period of lower-than-expected growth. In this case, the impact on bank balance sheets would be much more pronounced.

Box 2
Corporate insolvencies and the evolution of fiscal support measures

In response to the COVID-19 pandemic, governments across the EEA launched large-scale fiscal support programmes, including both liquidity and solvency measures. This fiscal support mitigated output losses caused by coronavirus containment measures and helped the financial system navigate the period of heightened uncertainty. At the end of 2021, the total support made available since the start of the pandemic (excluding moratoria) was equivalent to 23.8% of ESRB member countries' GDP in 2019, while total fiscal support taken up since the beginning of the pandemic amounted to 10.0% of member countries' 2019 GDP (Chart A). However, the volume of available support measures (excluding moratoria) decreased over the course of 2021 (to 13.5% of 2019 GDP in the fourth quarter), while the take-up stabilised at around 6.7% of 2019 GDP. The take-up of moratoria declined sharply in the course of the year, reaching 0.3% of 2019 GDP in December 2021. The ESRB published two reports assessing financial stability implications of COVID-19 support measures aimed at protecting the real economy (in **February** and **September 2021**) and one **report on preventing and managing a large number of corporate insolvencies**. The latter assessed the risks to economic and financial stability that would be posed by a large wave of insolvencies and looked at the policy options in terms of mitigating such risks.

Chart A
Fiscal measures: size announced and uptake, overview chart

(percentages of GDP)



Sources: ESRB data collection in compliance with Recommendation ESRB/2020/8 and ESRB calculations.
Note: The green bar represents all support made available since the third quarter of 2020, including expired measures.

While liquidity measures consistently represented the key form of fiscal support for NFCs in the review period, the last two quarters of 2021 saw a moderate shift in emphasis towards solvency measures (mainly direct grants). In terms of the overall amount of fiscal support (including both active and expired measures), liquidity measures were more important than solvency measures: public guarantees and loans, tax deferrals and credit insurance support accounted for 71.8% of all available measures and 63.7% of the total take-up of measures in the fourth quarter of 2021. Public guarantees remained the largest individual measure (when counting both active and expired programmes). Direct grants became the second largest measure over the course of 2021, but still account for a considerably smaller percentage of total support. In the fourth quarter of 2021, the overall amount of direct grants made available was equivalent to 3.7% of ESRB member countries' 2019 GDP, up from 2.9% in the fourth quarter of 2020. Their overall uptake increased even more strongly, with direct grant measures taken up until the end of the fourth quarter of 2021 equivalent to 2.5% of 2019 GDP, up from 1.6% by the fourth quarter of 2020, reflecting increased demand for solvency support as the effects of the pandemic weighed on firms' net worth. In line with this evidence, a survey of EU Member States indicates that support measures were modified in the course of 2021 to provide improved solvency support and better target the firms and sectors that were most in need of support.

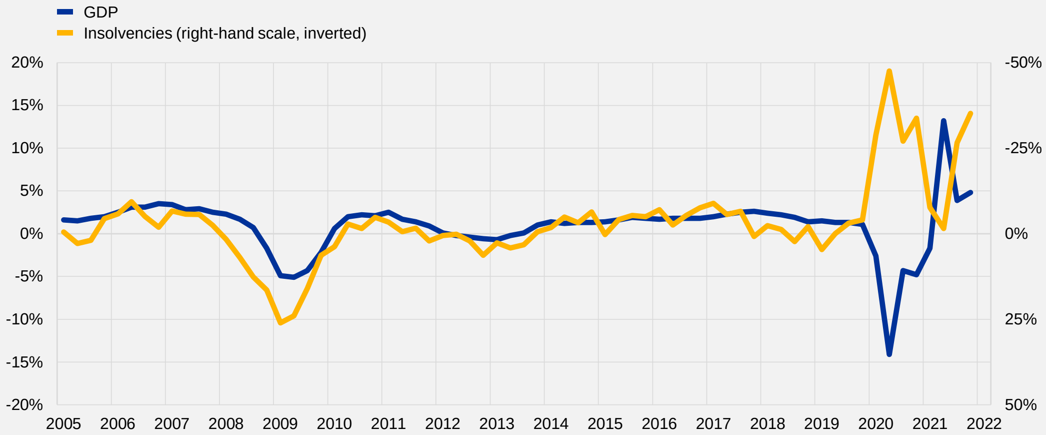
While many European countries are preparing to fully phase out their COVID-19-related fiscal measures by mid-2022, their economic impact will persist beyond that date. In the case of public loans, for example, borrowers will benefit from those measures until the loan matures. In the case of public guarantees, EBA risk dashboard data for the fourth quarter of 2021 illustrate that the residual maturity of public guarantees is more than two years for 80% of all loans subject to public guarantee schemes in the euro area. In the case of moratoria, end-dates do not necessarily mean that borrowers must immediately start repaying the principal; in some schemes, loans can continue to be covered by loan-specific moratoria. Moreover, banks and borrowers may renegotiate the terms of loans. Hence, potential "ramp effects" are highly contingent on country-specific fiscal policies and institutional arrangements.

The expansionary fiscal response to the pandemic has mitigated output losses caused by coronavirus containment measures, thereby helping to prevent large-scale insolvencies and the closure of otherwise viable firms. The start of the pandemic saw a marked fall in bankruptcy declarations across all sectors of the economy on account of public support measures (particularly moratoria and public guarantees) and the temporary suspension of the obligation to file for bankruptcy, as well as reduced activity in the courts during lockdowns (Chart B). Notwithstanding the brief upticks seen in the third quarter of 2020 and the first quarter of 2021, the aggregate number of bankruptcies in the EU declined over the course of 2021 and was 21.96% below its 2019 average (i.e. the pre-pandemic level) in the fourth quarter of 2021. At a sectoral level, bankruptcy declarations decreased throughout 2021 in accommodation and food services, information and communication, financial and insurance services, and education and health.

Chart B

GDP growth and insolvencies

(annual percentage changes)



Sources: Haver Analytics, Recommendation ESRB/2020/8, Trading Economics and ESRB calculations.
Notes: For the insolvencies series, the sample of countries accounts for 71% of ESRB GDP. Insolvencies data primarily come from Haver Analytics, but missing datapoints have been filled with data from Recommendation ESRB/2020/8 and Trading Economics.

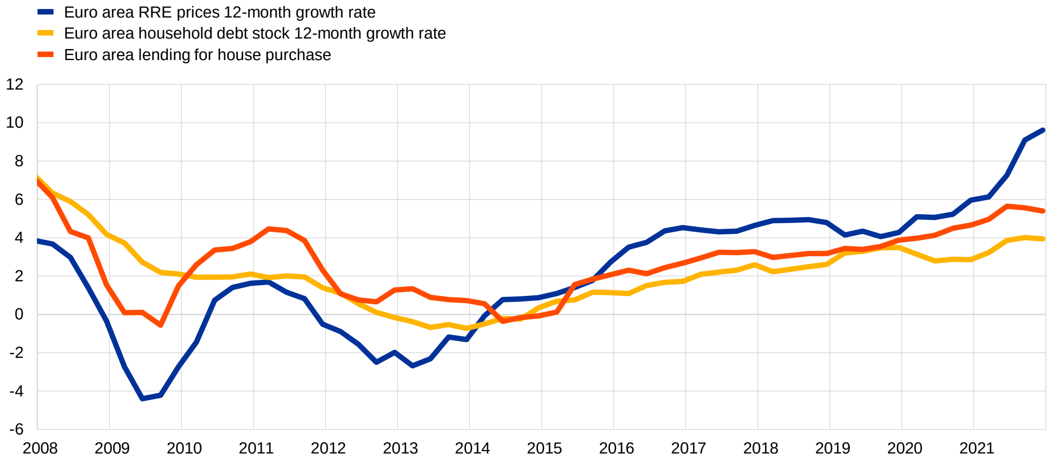
1.6 Risks in the residential and commercial real estate markets

While the ongoing economic recovery mitigated immediate risks for RRE markets during the review period, the build-up of cyclical risks and medium-term vulnerabilities continued. Substantial fiscal transfers to households during the pandemic (e.g. through job retention schemes) and low debt-servicing costs helped contain short-term vulnerabilities in the RRE sector. In addition, the low interest rate environment continued to boost mortgage lending. Moreover, the COVID-19 pandemic and post-lockdown working arrangements stimulated demand for housing on account of the increased use of teleworking and further compounded house price growth (Chart 10). Many of the countries which received ESRB warnings or recommendations in 2019 and 2021 saw particularly strong growth in RRE prices in the review period. The continued strong growth of house prices in many EU Member States strengthened concerns about a possible house price-mortgage lending spiral (Charts 11 and 12 present a set of overpricing indicators).

Chart 10

RRE prices, household debt stock and lending growth

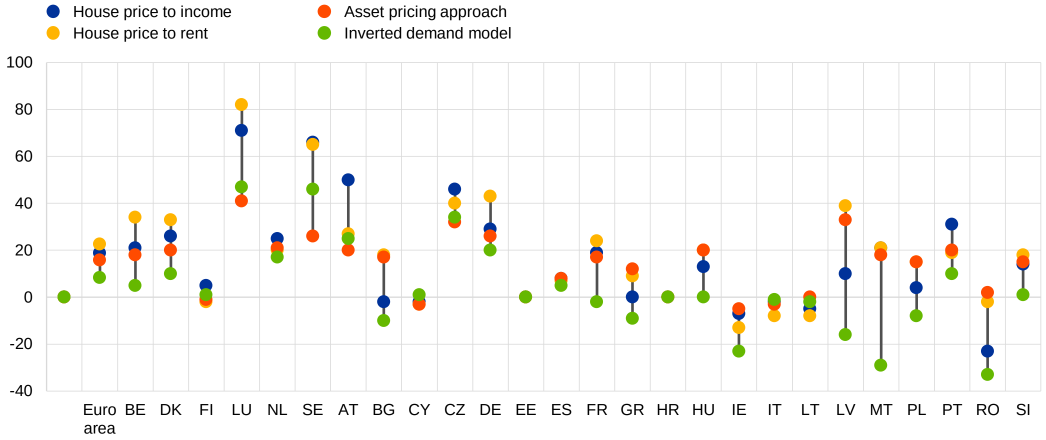
(annual percentage changes)



Sources: ECB Statistical Data Warehouse and ESRB calculations.

Chart 11

Overpricing indicators, third quarter of 2021

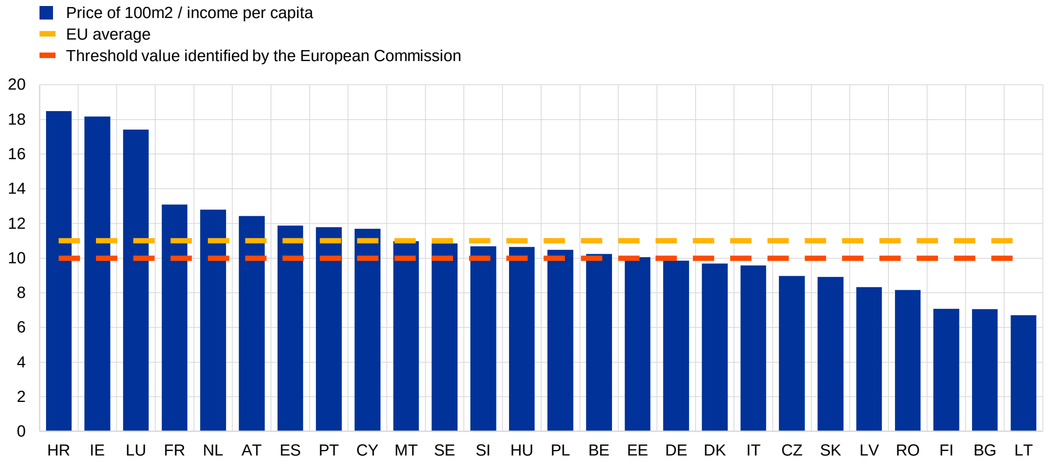


Sources: ECB and ESRB calculations.

Notes: The house price to income indicator is computed as the deviation of the ratio of nominal house prices to nominal disposable income from its average since January 1996; the house price to rent indicator is computed as the deviation of the ratio of nominal house prices to nominal rents from its average since January 1996; the asset pricing approach is computed as the residual of the user cost of housing equation, using a state-space approach (with Kalman filter/smoother and explicitly incorporating house price expectations); the inverted demand model is computed as the residual of an inverted demand equation estimated using Bayesian techniques. Data as of Q2 2021 for Denmark, Estonia, Ireland, Croatia and Slovenia, and as of Q3 2021 for the rest.

Chart 12

Ratio of price per 100 square metres to income per capita, 2021



Sources: EBA risk dashboard and ESRB calculations.

Buoyant house price growth and mortgage lending were accompanied by signs of deteriorating lending standards in several countries, as reflected in the increasing share of loans with high loan-to-value (LTV) and loan-to-income ratios.[14] High and rising household indebtedness, in many countries coupled with high debt-service-to-income ratios, points to an increasing risk of stretched debt-servicing capacity and increases the risk of future price corrections. Moreover, rising lending rates aggravate these vulnerabilities, with households with variable-rate mortgages or shorter fixed-rate periods on their mortgages being particularly exposed. In March 2022, 13.2% of all new loans for house purchase in the euro area were issued as variable-rate loans or had initial rate fixation periods of up to one year.[15] A significant decline in house prices could severely affect economic growth through channels such as (i) the impact of declining household wealth on consumption; (ii) increase in banks’ credit risk (which could trigger a correction in financial asset prices, including through confidence channels); and (iii) declining activity in the construction sector.

While in March 2022 it is too early to assess the impact of the war in Ukraine on RRE markets, the ESRB held the view that developments in this sector would crucially depend on growth and inflation prospects. In a scenario of a more moderate impact of the war on growth, house prices could continue to increase, also on the back of “safe haven” purchases and housing investment to hedge against inflation, thereby compounding cyclical risks and vulnerabilities in several countries. In contrast, in a more adverse macroeconomic scenario characterised by significantly-lower-than-expected growth prospects and perceptibly rising mortgage interest rates, the resulting deterioration in real household income could lead to price corrections, possibly with adverse implications for financial stability.

The economic recovery after the COVID 19-crisis can be expected to benefit the commercial real estate (CRE) sector, but medium-term risks remain elevated, particularly for low-quality

[14] See “**Financial Stability Review**”, ECB, November 2021.

[15] The share represents the euro area average weighted by countries’ outstanding nominal amount of loans. However, there is a high degree of heterogeneity across countries.

assets in the retail and office segments. The impact of the COVID-19 crisis on the CRE sector was very heterogeneous in the review period. Prices and activity in the retail and office segments were particularly hard hit. While prices declined for industrial and residential assets in the first quarter of 2020, these segments subsequently recorded a rapid recovery. At the end of March 2022, the Real Estate Investment Trust (REIT) indices for offices and retail were still hovering around 60% and 85%, respectively, of their pre-pandemic levels (while the REIT index for the industrial sector was 60% above its pre-pandemic level)[16]. Moreover, remote working related to the pandemic and environmental, social and governance (ESG) concerns relating to EU climate targets and higher energy prices led to an increase in demand for high-quality buildings, which exerted pressure on rents for lower-quality buildings. These factors can be expected to weigh on the outlook for sub-prime segments of the CRE market over the medium term. More generally, a further decline in CRE prices, possibly compounded by the impact of the war in Ukraine, could affect the financial system through rising credit risk, declines in the value of collateral and losses on direct CRE holdings. These risks will be particularly pronounced if the recovery turns out to be weaker than expected.

1.7 Sovereign debt sustainability

At the end of the review period, the deterioration in macroeconomic prospects and the tightening of financial conditions are weighing on sovereign debt dynamics in the EU. Most importantly, the rise in debt-to-GDP ratios to historically high levels has further reduced resilience to possible adverse shocks, increasing medium to long-term risks to debt sustainability in most euro area countries compared to the pre-pandemic assessment. The March 2022 **ECB staff macroeconomic projections** for the budget balance in 2024 imply downward revisions compared to the December 2021 projections on account of the deterioration in the macroeconomic outlook, compounded by the war in Ukraine and upward revisions to interest payments as a share of GDP. Moreover, after the sharp increase in 2020, the March 2022 ECB staff projections forecast euro area public debt to decline to about 89% of GDP in 2024, which is still above its pre-pandemic levels. Finally, joint debt issuance under the Next Generation EU programme, while having a positive impact on confidence, fiscal space and the recovery, is designed as temporary and will need to be repaid.

Several factors have an impact on public finances and sovereign risk. Public finances remain challenged by additional fiscal expenditures related to the war in Ukraine (in particular subsidies and transfers to cushion the impact of surging energy prices, refugee-related spending and defence spending (including the grant component of direct support for Ukraine), which are compounding fiscal pressures. In addition, should deteriorating growth and persistently high energy and commodity prices severely compound vulnerabilities in the NFC sector and bank asset quality issues, related explicit and implicit contingent liabilities could lead to a re-emergence of the sovereign-bank-corporate nexus. Moreover, a reassessment of sovereign risks by financial markets could result in a more pronounced increase in interest rate differentials within the EU and compound fragmentation risk – particularly for highly indebted Member States. On the positive side, many Member States have taken advantage of low interest rates to extend the average maturity of

[16] A further source of concern relates to real estate funds' liquidity mismatches and leverage. Funds' liquidity mismatches arise from the asset side being less liquid than fund shares. At the end of 2020, funds accounting for 34% of the market had a misaligned asset-liability maturity structure. At the same time, liquidity buffers fell to historical lows in 2020, thereby reducing funds' resilience in the face of large redemptions.

their sovereign debt, thereby strengthening their resilience to abrupt changes in investor sentiment. Overall, public debt dynamics are scenario-dependent and crucially hinge on the severity and duration of the deterioration in growth prospects and the medium-term path of interest rates.

2 ESRB policies addressing systemic risk

In the course of the review period, the ESRB issued warnings and recommendations aimed at addressing risks in RRE markets, a recommendation with a view to establishing a pan-European systemic cyber incident coordination framework, and advice to the European Commission in the context of a review of the macroprudential framework for banks. It also issued recommendations, advice and letters in order to further strengthen the regulatory framework for the wider financial system, particularly as regards MMFs and central clearing. The ESRB also made progress on financial risks related to climate change, crypto-assets and DeFi.

2.1 Addressing the build-up of vulnerabilities

A number of initiatives have been implemented in order to tackle the build-up of vulnerabilities in the fields of RRE and cyber risk.

2.1.1 Residential real estate

The ESRB has a mandate to issue warnings when significant systemic risks are identified and make recommendations when it deems that remedial action needs to be taken. The ESRB monitors and assesses compliance with its recommendations via an “act or explain” mechanism.

On 11 February 2022 the ESRB published five warnings and two recommendations on medium-term vulnerabilities in the RRE sector, which had been approved by the General Board at its meeting in December 2021. It also published an assessment of compliance with recommendations issued in 2019. Warnings were sent to the competent ministers of five countries with newly identified vulnerabilities that had not been addressed sufficiently: Bulgaria, Croatia, Hungary, Liechtenstein and Slovakia. Recommendations were also sent to the competent ministers of two countries, Germany and Austria (which had already received ESRB warnings in 2019 and 2016 respectively), as the vulnerabilities in those countries had not been addressed sufficiently. After these recommendations had been issued, the authorities in Germany and Austria announced new measures aimed at addressing vulnerabilities in the RRE sector.

The ESRB pays close attention to vulnerabilities in the RRE sector given that sector’s importance for financial and macroeconomic stability. Back in 2016 and 2019, the ESRB conducted systematic forward-looking assessments of such vulnerabilities in the EEA, and it recently concluded another such assessment. That recent assessment formed the basis for the latest set of country-specific warnings and recommendations.

The assessment covered all EU Member States, plus Iceland, Liechtenstein and Norway, and it analysed the main trends in various real estate indicators, as well as the macroprudential policy steps that countries have taken to mitigate the financial stability risks identified. This analysis showed that financial stability risks relating to RRE had increased further in several countries in the context of macroeconomic risks relating to the COVID-19 pandemic and the continued strong dynamics in housing markets, housing credit and household indebtedness.

The key vulnerabilities highlighted by the ESRB's assessment were of a medium-term nature and related, depending on the country, to (i) rapid house price growth and the possible overvaluation of RRE, (ii) the level and dynamics of household indebtedness, (iii) growth in housing loans, and/or (iv) signs of a loosening of lending standards. Beyond macroprudential policy considerations, the assessment showed that, in a number of countries, some underlying vulnerabilities would be mitigated more efficiently by reviewing housing and tax policies. In view of the economic uncertainty prevailing during the pandemic, the assessment emphasised that any policy action should be assessed carefully to ensure that it helped to mitigate vulnerabilities in the RRE sector, while at the same time avoiding procyclical effects on the overall performance of the real economy and the financial system.

Significant vulnerabilities had continued to be observed in the RRE sectors of the countries that had received ESRB recommendations in 2019. In Denmark, Luxembourg, the Netherlands, Finland and Sweden, vulnerabilities had persisted in spite of recent measures aimed at addressing them. In most cases, house price increases had continued unabated (or even accelerated), so the overvaluation of house prices had remained unchanged or increased further. Household indebtedness had also remained high or increased further in a number of countries, partly as a result of strong growth in mortgage credit. In most cases, lending standards for new mortgage loans had not improved significantly or had shown signs of deterioration.

For the remaining EEA countries, either the ESRB did not identify any build-up of material vulnerabilities in the RRE sector, or such vulnerabilities were pinpointed but the current policy stance was assessed as being sufficient to address them. Full details of that assessment can be found in the report (entitled "**Vulnerabilities in the residential real estate sectors of the EEA countries**") which was published on 11 February 2022 alongside the warnings and recommendations. The assessment of vulnerabilities is based on available data and covers developments up to mid-November 2021.

The ESRB also published a compliance report on the countries that had received recommendations in 2019 in response to medium-term vulnerabilities in their RRE sectors, looking at the policy responses in Belgium, Denmark, Luxembourg, the Netherlands, Finland and Sweden. The ESRB recommendations issued in 2019 had a specific timeline for their implementation, ranging from 2020 to 2022. One addressee (Luxembourg) was assessed as being fully compliant, three addressees (Belgium, Denmark and Sweden) were considered to be largely compliant, and two addressees (the Netherlands and Finland) were assessed as being partially compliant.

2.1.2 Cyber risk

The ESRB identified cyber risk as being a source of systemic risk to the financial system which could have serious negative consequences for the real economy. The financial sector needs to have robust information and communication technology systems and is highly dependent on the confidentiality, integrity and availability of the data and systems it uses. Major cyber incidents have the potential to hamper the availability of key economic functions, corrupt information and destroy confidence in the financial system and may therefore pose a systemic risk. In a worst-case scenario, a cyber incident could affect operational systems in the financial sector and impair the fulfilment of critical economic functions, triggering financial contagion or leading to an erosion of confidence in the financial system. If the financial system is not able to absorb these shocks, financial stability is likely to be put at risk.

The ESRB identified a need for authorities to respond rapidly in order to mitigate any negative effects that cyber incidents might have on financial stability. In the event of a cyber incident that has the potential to become systemic, effective coordination and communication can help to ensure the effective response to the incident. It can also help to maintain confidence in the financial system and limit contagion effects on other financial institutions, thus preventing the incident from becoming systemic. However, communication and coordination between (financial) authorities in the event of a systemic cyber crisis can become complex. The underlying shock to the financial system originates in different ways from traditional financial and liquidity crises. The response from financial authorities requires new coordination networks with other authorities (e.g. law enforcement and cyber authorities) that financial authorities do not usually interact with.

In December 2021 the ESRB's General Board adopted a recommendation for the establishment of a pan-European systemic cyber incident coordination framework (EU-SCICF). This recommendation reiterated that the speed and propagation of cyber incidents calls for a high level of preparedness and coordination among financial authorities in order to respond effectively to major cyber incidents. The proposed EU-SCICF would aim to strengthen such coordination among financial authorities in the EU, as well as with other authorities in the EU and key actors at international level. It would complement the EU's existing cyber incident response frameworks by addressing risks to financial stability stemming from systemic cyber incidents.

In January 2022 the ESRB also published a report entitled "Mitigating systemic cyber risk", which explained how the EU-SCICF would facilitate an effective response to a major cyber incident. The report assessed the ability of the current macroprudential framework to address the risks and vulnerabilities stemming from systemic cyber risk. The ESRB concluded that the macroprudential mandates and toolkits of financial authorities needed to be expanded to include cyber resilience.

The ESRB proposed a new macroprudential strategy, which should help to mitigate the risks to financial stability stemming from cyber incidents. A monitoring and analysis framework is required for systemic cyber risk in order to help design and calibrate this new set of cyber resilience tools. For instance, the cyber resilience of the financial system could be tested in a non-technical manner using scenario analyses, which could show how systemic institutions in the financial system would plan to respond to and recover from a severe but plausible cyber incident scenario. In order to draw conclusions from these financial stability tests, macroprudential authorities would need to decide what would constitute an acceptable level of disruption to operational systems performing critical economic functions. It is also important to increase authorities' understanding of systemic cyber risk-related vulnerabilities and contagion channels in the financial system. To this end, it is important to identify systemically important nodes at financial and operational levels – including third-party providers.

Box 3
ESRB workstreams in response to the war in Ukraine

Following the Russian invasion of Ukraine, the ESRB's Steering Committee and General Board are monitoring all developments which could potentially have financial stability

implications. The ESRB is focusing on two aspects in particular: (i) monitoring the implications of reported cyber incidents, and (ii) monitoring developments in derivatives markets.

ESRB member countries currently face a high risk of cyberattacks. Thus far, sophisticated cyberattacks have been more likely to target the non-financial sector, but there is a risk of a spillover from affected operational systems to the financial sector. The ESRB is closely monitoring the cyber threat landscape on the basis of both quantitative and qualitative information, including information provided by ECB Banking Supervision on cyber incidents in significant banks. Moreover, the ESRB and its member institutions are exchanging views and information on cyber incidents which could have implications for financial stability in Europe. This is in line with the recommendation on the establishment of a pan-European systemic cyber incident coordination framework which the ESRB addressed to the ESAs.

High levels of volatility and price increases in commodity and energy markets have led to significant margin calls for cleared derivatives, which could potentially lead to the crystallisation of liquidity risks. The ESRB is monitoring these developments closely on a daily basis using data reported under the European Market Infrastructure Regulation (EMIR) and is sharing relevant information across its member institutions. The ESRB notes that access to high-quality granular data is of fundamental importance in order to monitor developments and identify potential risks and contagion effects.

The ESRB notes that the quality of reported data remains unsatisfactory. Reporting entities and trade repositories need to make substantial progress in this area. Data quality is a common good, resulting in benefits for financial stability (thereby also benefiting reporting entities).

2.2 Strengthening the regulatory framework for banks

The ESRB’s activities in this area included a comprehensive response to a European Commission call for advice, in which the ESRB proposed a more forward-looking, flexible and holistic macroprudential framework for the next decade. The ESRB proposed a new conceptual framework for comparing systemic risks with the policy measures taken to address them, as well as providing in-depth analysis of the usability of banks’ capital buffers.

2.2.1 ESRB response to the European Commission’s call for advice on the 2022 review of the EU macroprudential framework for banks

In March 2022 the ESRB issued a response to the European Commission’s call for advice on the 2022 Review of the EU macroprudential framework for banks and published a concept note containing proposals aimed at making the framework fit for the next decade. Overall, the ESRB is of the view that the macroprudential policy for the banking sector should (i) act in a forward-looking manner, fostering resilience before systemic risks materialise, (ii) have the flexibility to respond to structural changes in the financial system, as well as cyber risks and risks relating to climate change, and (iii) form part of a holistic framework, promoting congruent regulation across all activities in the financial system and facilitating cooperation between authorities at all levels.

The experience that has been gained with the application of macroprudential provisions in the last ten years highlights the need for more consistent, forward-looking and proactive countercyclical use of macroprudential instruments. An overarching aim of desired changes to the macroprudential framework is to reduce the complexity of legal provisions, both procedurally and conceptually, which would facilitate the use of relevant instruments by authorities without weakening existing safeguards for the Single Market. Looking ahead to the next decade, the priorities in terms of the macroprudential toolkit for banks are as follows: (i) ensure that banks fund themselves with enough capital to match cyclical and structural systemic risks; (ii) enhance the usability and use of capital buffers; (iii) close gaps in the macroprudential toolkit, notably through the inclusion of borrower-based measures (BBMs); and (iv) ensure consistent use of policy instruments across the EU.

Increasing macroprudential policy space through larger and more actively built up releasable capital buffers would improve banks' resilience as well as the usability of buffers. More releasable capital can be obtained through an earlier and more forward-looking build-up of the countercyclical capital buffer (CCyB). This could be combined with a positive neutral rate – i.e. a rate set at a positive level in a standard environment without elevated cyclical risks. In contrast, a positive neutral rate could be applied to the systemic risk buffer (SyRB) in order to increase loss absorption capacity for unexpected shocks (e.g. 'black swan' events). Both a positive neutral CCyB and SyRB could be implemented via guided discretion by member countries.

Further options in terms of improving the usability of buffers are discussed in the concept note. ESRB analysis has shown that some banks – particularly systemically important ones – are not able to make full use of their capital buffers owing to overlapping capital requirements (see Section 2.2.2 below on buffer overlaps). This is the case when dipping into the buffers would result in a breach of the minimum requirement for the leverage ratio or the minimum requirement for own funds and eligible liabilities (MREL). The concept note discusses the advantages and disadvantages of the extension of the leverage ratio buffer as well as of various potential mitigants.

Risk weights play a crucial role in determining the amount of capital that must be held by banks in order to foster resilience against different sources of risk. Consequently, macroprudential authorities may need to adjust risk weights if their level is not commensurate with systemic risk emanating from these exposures. As regards risk weights for residential and commercial real estate, it would be beneficial to establish a new single harmonised macroprudential article replacing specific provisions in Articles 124, 164 and 458 of the Capital Requirements Regulation (CRR). This new article should be based on the principle of guided discretion, with the aim of striking the right balance between consistent application and flexibility. The experience gained with the use of Article 458 of the CRR suggests that a few simplifications could be made while also retaining the provision's status as an instrument of last resort.

The EU's legal framework should be enriched by including BBMs for RRE loans in a targeted manner. This would ensure that a basic set of instruments is available in all countries to effectively mitigate risks relating to RRE markets at both national and EU level. Importantly, BBMs should not be included in EU legislation via fully harmonised definitions, but by allowing for sufficient flexibility in order to address national specificities. Similarly, decisions on the activation, calibration and release of BBMs would be left in the hands of national authorities. The EU's legal framework should therefore provide only a minimum level of harmonisation, in line with the principles of subsidiarity and proportionality. Furthermore, the Commission should decide which safeguards are required to ensure that the new macroprudential powers are used solely at national level. Nonetheless, this minimum set of BBMs should be subject to common standards of governance in order to reduce the risk of inaction bias. Minimum harmonisation of BBMs at EU level would lead to further alignment of national legal systems, reduce the complexity that currently results from the multitude of different national legal frameworks regulating BBMs, and facilitate the completion of the Single Market. It would also facilitate the reciprocation of BBMs, thereby helping to mitigate systemic risk at EU level.

Approaching the subject of new macroprudential tools from an activity-based perspective that complements the entity-based perspective could help to improve the resilience of the system as a whole. Congruent regulation (which applies similar requirements to all entities carrying out the same type of financial activity, taking into account their specific risk profiles) should help to avoid regulatory arbitrage and the transfer of risk to other parts of the system (such as fintech firms and big tech companies, which appear to be less regulated than banks, while increasingly performing similar activities). Entity-specific tools could therefore be complemented with activity-based tools. BBMs, for instance, could in principle address all types of lending, regardless of the institutional status of the lender. The ESRB also raised the issue of BBMs in its **response** to the European Commission’s consultation on the review of the Mortgage Credit Directive.

Macroprudential and supervisory authorities need to be able to monitor, prevent and address systemic liquidity risks effectively. As investment funds, MMFs and other financial institutions represent an important source of wholesale funding for the banking sector, it is important to monitor liquidity flows at the level of the EU financial system as a whole and to ensure a coherent system-wide analysis of liquidity risks.

The capacity of cyber incidents to impair the operability of the financial system adds a new dimension to macroprudential policy. In order to address the risk that cyber incidents could have financial consequences in addition to operational ones, or even affect confidence in the financial system’s ability to provide critical economic services, the macroprudential mandate needs to be extended to encompass cyber resilience. Additional cyber resilience requirements should be introduced for systemically important institutions. To ensure proportionality, smaller and lower capacity institutions might focus on strengthening cyber hygiene. Furthermore, the macroprudential mandate also needs to encompass third-party information and communication technology providers, as already foreseen for microprudential oversight in the Digital Operational Resilience Act (DORA).

The systemic nature of climate-related financial risks is widely acknowledged, and numerous initiatives are being developed in order to better monitor and quantify their impact on the financial system. The EU should reflect on the question of how macroprudential policy could help to increase credit institutions’ resilience to climate-related financial risks – both transition and physical risks. The ESRB, in partnership with the ECB, is assessing the possibility of using macroprudential policy instruments to address systemic risks relating to climate change in the financial system. Preliminary findings indicate that, possibly with some amendments, the SyRB and large exposure limits could potentially be useful ways of addressing systemic aspects of climate risk. As a growing body of analysis on climate-related risks becomes available, it may be necessary to make further adjustments to the macroprudential toolkit or introduce new tools in order to mitigate risks to financial stability.

Policymaking for the banking and financial sector as a whole would benefit from even deeper coordination and simpler procedures. Inaction bias in macroprudential policy could be further reduced by clearer allocation of responsibilities, greater transparency, better communication and clearer narratives, as well as more flexible instruments and simpler implementation and reciprocation procedures. Furthermore, common methodologies (including taxonomies for risk identification and calibration guidance in the form of floors and benchmarks) can play an important role in addressing possible inaction bias and are thus worthy of further assessment and elaboration. This should also contribute to more consistent use of policy instruments across the EU. Ensuring cooperation, coordination and data sharing between micro- and macroprudential authorities, resolution authorities and central banks is also key.

Box 4
Assessing a macroprudential stance

The ESRB published two reports on the assessment of a macroprudential stance in December 2021. The macroprudential stance is a conceptual framework for comparing systemic risks with policy measures used to address them. The purpose of this comparison is to arrive at an assessment of whether the macroprudential policy stance of a given country is neutral, loose or tight.

Assessing a macroprudential stance may help policymakers to decide how to address systemic risks. The ultimate objective of macroprudential policy is to contribute to financial stability by strengthening the resilience of the financial system as a whole and countering the build-up of systemic risks. In order to achieve this objective, the ESRB, like other macroprudential authorities, needs to form a view on the macroprudential stance to guide its risk warnings and policy recommendations. The two reports published in December 2021 documented the progress made by the ESRB in this area, although further work is required to refine the proposed methods and approaches.

The report by the Advisory Scientific Committee (ASC) explains that, conceptually, a policy stance requires a framework containing objectives, tools and transmission mechanisms. The report takes some of the lessons from the monetary policy framework and applies them to macroprudential policy to complement narrative approaches. It discusses a setting in which the ultimate objective of macroprudential policy is to minimise the frequency and severity of economic losses arising from severe financial distress and integrates the growth-at-risk concept into that setting.

The report by the Advisory Technical Committee (ATC) applies country-level data to a macroprudential stance framework. It examines three complementary approaches to assessing, discussing and communicating a macroprudential stance:

1. A growth-at-risk approach, in which a model forecasts the distribution of future economic growth. The resulting stance metric quantifies future effects of current vulnerabilities and conditions in the financial system by focusing on risks at the lower end of the growth distribution.

2. A semi-structural approach, in which a model calculates trade-offs between the cost of capital buffers used to absorb losses within the banking sector and downside risks to real GDP.

3. An indicator-based approach to sectoral analysis focuses on indicators measuring risk, resilience and macroprudential policies taken to address risk in a sector, for example, in the real estate sector.

Going forward, the ESRB will use these approaches for its risk assessments and work to improve the framework further. In the longer run, assessments of a macroprudential stance also aid communication of macroprudential policy decisions and increase accountability. This is facilitated by the stance framework when the link between risks and policies is clearer.

2.2.2 Buffer overlaps

In December 2021 the ESRB published a report on the usability of banks' capital buffers. Macroprudential capital buffers were introduced in response to the global financial crisis in order to increase banking systems' resilience against systemic risks. Unlike regulatory minimum requirements, banks should be able to draw down these macroprudential buffers when losses need to be absorbed during times of stress. The buffers should then be replenished afterwards. Thus, such buffers should cushion against shocks and improve banks' loss-absorbing capacities. Buffers complement minimum requirements and are key macroprudential policy instruments.

However, buffers are not fully usable if drawing them down would lead to a breach of parallel minimum requirements. The leverage ratio requirement and the MREL apply in parallel with the buffers, which form part of the risk-weighted capital framework. While dipping into the buffers leads to restrictions on distribution, the consequences of breaching minimum requirements are more severe: they can lead to the closure of the bank.

The report concluded that banks would not always be able to use their risk-weighted capital buffers to absorb losses without breaching parallel minimum requirements. Impediments to the use of capital buffers vary across countries and banks, depending on the average risk weight, balance sheet structure and regulatory requirements.

For the macroprudential framework to be effective, it is important to ensure that buffers are usable. This is particularly true in situations where a macroprudential authority releases a buffer. Banks that draw down released buffers are not subject to the kinds of restrictions on distributions that would apply if they breached buffer requirements. The CCyB is intended to be released in a crisis. However, a CCyB release is ineffective if the released capital is simultaneously tied up by a parallel minimum requirement.

The report provides a neutral description of potential policies that would improve buffers usability should policymakers decide that overlaps need to be reduced. Reflecting the analytical mandate of the working group, the report, in order to inform decision-makers, sets out various options without assessing their relative merits, shortcomings and feasibility from a political perspective. While authorities could implement some of these options within the current legal framework, others would require changes to legislation.

Box 5
Digitalisation and the future of banking

In January 2022 the ASC published a report on digitalisation and the future of banking. The increased digitalisation of advanced economies is affecting the way that banks produce and provide financial services for their customers, as well as bringing new fintech and big tech players into the financial system.

The most recent wave of digitalisation has been triggered by advances in telecommunications and information technology. The three biggest recent innovations affecting banks' traditional core business model are (i) distributed ledger technologies (DLT), (ii) artificial intelligence (AI), including machine learning and big data technology, and (iii) smartphone technology, the internet and application programming interfaces (APIs), including the rise of cloud computing. Digitalisation may mean that banks' customers have better experiences, as it could result in financial services being more tailored to their needs, or it could increase the range of products available to them.[17] On the other hand, new technologies may also bring new players into the financial services market.[18] As a result, incumbent banks may face competitive threats from digital banks, fintech firms and big tech players across the different financial services that they provide. While incumbent banks do not typically regard fintech firms as a fundamental threat to their position in the market, they could be strongly affected by big tech players providing financial services, particularly if they do so through their own subsidiaries rather than in cooperation with incumbent banks.

Any new providers with bank-like intermediation models will be exposed to the known financial risks associated with banking (liquidity risk, credit risk, market risk, etc.) and non-financial risks could increase. While increased competition could enhance stability in the long term, concentration (particularly in the case of big tech firms) could result in more institutions being "too big to fail", and incumbent banks could end up taking greater risks in order to compete with new providers. Cooperation between big tech firms and incumbent banks might lengthen intermediation chains, moving them towards the originate-and-distribute model and raising concerns about incentives and distribution of risk. In addition to financial risks, digitalisation also poses significant non-financial risks, usually implicitly included in operational risks. These risks stem from several factors: greater concentration in the provision of basic services, such as cloud computing; wider use of AI in finance; overly automated or IT-oriented services that may be more prone to cyberattacks; reliance on a leading technology that could suddenly become obsolete; and a false sense of security as a result of overleveraging insights from AI.

The ASC report outlines three scenarios that can help overcome the existing uncertainty regarding future interaction between incumbent banks and fintech and big tech firms. In the first scenario, incumbent banks maintain their central role in the area of money creation and financial intermediation, while fintech players continue to focus on specific niche markets, and big tech firms offer payment services but do not have access to central bank clearing and payment systems. The second scenario foresees a retrenchment of incumbent banks, while big tech firms offer financial services through regulated subsidiaries and capture the transaction-based hard-data lending market. As a result, the incumbent banking system shrinks and there is a structural change

[17] Digitalised products could also be provided more efficiently or quickly to customers.

[18] See also **Commission Communication on a Digital Finance Strategy for the EU**.

in the financial system. In the third scenario, the issuance of retail central bank digital currencies under certain hypothetical configurations leads to a very significant change in the structure of the financial system: incumbent banks face higher funding costs and a more volatile funding base, and central banks play an increasing role in financial intermediation. In this scenario, the traditional banking system no longer plays the role of a stable anchor.[19] While these three scenarios do not cover every possible development in the EU banking system between now and the end of the decade, they can be used to understand the contributions that financial and non-financial risks make to the overall level of risk.

Since the regulatory response will be a key factor when it comes to determining which of the three scenarios materialises, there are a number of macroprudential policy actions that could be considered at this stage.[20] Consideration could be given to: (i) the expansion or adaptation of the regulatory perimeter and the conditions for accessing the safety net; (ii) the need to enhance cooperation between prudential authorities at a global level; (iii) ring-fencing the financial activities of big tech firms; (iv) the need to enhance cooperation with regulators in non-financial sectors (e.g. data protection, telecommunications); (v) changing regulatory and supervisory practices to account for the increase in digitalisation; (vi) the need to balance stability and efficiency when discussing central bank digital currencies; and (vii) the reinforcement of the framework supporting a reduction in capacity for a bank or its orderly exit . Some of these actions would apply to all three scenarios, while others would only really be relevant in one of the scenarios.

2.3 Strengthening the regulatory framework for the wider financial system

The review period saw the ESRB (i) provide input and/or responses to consultations organised by the ESAs and the European Commission, (ii) issue recommendations, and (iii) engage with co-legislators through letters. This section describes those various contributions in more detail.

2.3.1 Money market funds

The ESRB issued a recommendation in December 2021 with the aim of addressing persistent vulnerabilities in MMFs. The market turmoil at the onset of the COVID-19 pandemic in March 2020 created liquidity management challenges for some types of MMF investing primarily in private debt instruments. These challenges stemmed from a combination of large-scale redemptions by investors and deteriorating secondary market liquidity of the assets that MMFs had invested in. This episode highlighted an underlying tension in the liquidity transformation that is performed by MMFs, which arises from their two economic functions in the financial system and the real economy: (i) the fact that they are used as cash management vehicles by investors; and (ii) the fact that they provide short-term funding to issuers. As they offer liquidity to investors on demand,

[19] The third scenario applies only to a specific hypothetical model of a central bank digital currency (it is anonymous, it is supplied elastically, its availability is not confined to residents of the issuing jurisdiction, and it may pay interest). Thus the scenario would not be relevant if, for example, there was a limit on holdings of the central bank digital currency.

[20] Besides macroprudential policy actions, digital financial literacy is particularly important to promote a secure digital environment within the financial sector and to enhance consumer protection.

investors often perceive the MMF units they purchase to be cash-like instruments. At the same time, MMFs invest in financial assets that cannot be relied on to be liquid, particularly in times of stress when funds face redemption requests.

The 2021 recommendation reflects the spirit of the ESRB's 2012 recommendation, which aimed to mitigate the risks to financial stability posed by EU-based MMFs as a result of their bank-like characteristics and their susceptibility to investor runs. As no single measure can address all of the systemic vulnerabilities of MMFs, the 2021 recommendation proposes a package of four measures to reduce the build-up of systemic risk in the sector. The aims of these measures are as follows:

Recommendation A aims to reduce threshold effects embedded in regulatory requirements that could provide first-mover advantages and provoke runs. It proposes that low-volatility net asset value (LVNAV) MMFs have a fluctuating net asset value (NAV) to ensure that investors redeem their units at a value that reflects the market valuation of the underlying assets. It also recommends eliminating regulatory trigger effects (using liquidity fees and redemption gates) when MMFs breach liquidity requirements. To this end, the recommendation seeks to remove incentives for investors to redeem their units before others.

Recommendation B aims to reduce liquidity transformation. It calls for higher liquidity requirements for variable NAV and LVNAV MMFs, mandatory public debt holdings, and daily and weekly maturing assets. In order to encourage MMFs to use liquidity buffers to meet redemptions, the recommendation suggests that MMFs could hold less liquidity than normal in times of market-wide stress.

Recommendation C aims to impose redemption costs on redeeming investors. It proposes that all MMFs have at least one liquidity management tool (LMT) available to pass on trading costs to departing and incoming investors (anti-dilution levies, liquidity fees or swing pricing for MMFs with a fluctuating NAV). To facilitate the use of LMTs, the recommendation calls for criteria to be established governing their application in all market conditions.

Recommendation D aims to enhance monitoring and stress-testing frameworks. In order to provide national and EU bodies with better information to help identify the systemic weaknesses of MMFs, it proposes a higher reporting frequency and wider data collection, as well as data-sharing arrangements between national competent authorities and EU institutions with financial stability mandates. The recommendation also calls for the introduction of system-wide stress tests to complement the internal stress tests that MMF managers are required to conduct. The ESRB's contribution to ESMA's guidance on those internal stress tests is described in Section 2.3.4.

The recommendation was also intended as input into the Commission's review of the Money Market Fund Regulation (MMFR). In designing the recommendation, the ESRB was mindful of policy discussions at international level, including consultations conducted by ESMA and proposals made by the Financial Stability Board. The recommendation was accompanied by a report setting out the economic rationale for those proposals. It was preceded by an issues note, which was published in July 2021. The ESRB also suggested that the adequacy of the MMFR should be further reviewed five years after the entry into force of the new provisions to assess whether the resilience of MMFs had been improved and contagion channels reduced by the legislative reforms.

2.3.2 Central clearing

In December 2021 the ESRB provided a response to ESMA's consultation on determining the systemic importance of LCH Ltd and ICE Clear Europe or their clearing services. With a view to deciding whether certain UK CCPs or some of their clearing services would continue to be recognised for the provision of services in the EU, ESMA had consulted the ESRB on the basis of Article 25(2c) of EMIR. ESMA's consultation followed the European Commission's temporary equivalence decisions regarding the UK regulatory and supervisory framework for CCPs and ESMA's decision to recognise three UK CCPs.

The ESRB concluded that some clearing services provided by these CCPs were of substantial systemic importance to the EU, but they should continue to be recognised. Specifically, the ESRB concluded that short-term interest rate (STIR) and credit default swap (CDS) services provided in euro by ICE Clear Europe Ltd and SwapClear services provided in euro and Polish zloty by LCH Ltd were of substantial systemic importance for the EU, but their provision should nevertheless be allowed in the EU. The ESRB also proposed that any extension to the current recognition of the two UK Tier 2 CCPs should be temporary, and that it should be supported by measures aimed at (i) increasing the number of clearing solutions offered by EU CCPs and (ii) reducing financial stability risks linked to the substantial systemic importance of the services operated by ICE Clear Europe Ltd and LCH Ltd. Its proposals included strengthening central clearing capacity in the EU, reinforcing ESMA's powers vis-à-vis systemic CCPs in the United Kingdom and potentially vis-à-vis some EU CCPs (if their role were to increase as a result of EU exposures growing beyond certain thresholds), and incentivising a reduction in dependence on clearing services identified as being of substantial systemic importance to the EU.

The ESRB also responded to a targeted consultation on the review of the central clearing framework launched by the European Commission following the conclusion of ESMA's systemic importance assessment of UK CCPs. In its consultation, the European Commission was seeking measures to improve the attractiveness of EU clearing and strengthen the supervisory framework for clearing in the EU. In its response, the ESRB flagged the need for continued access to third-country CCPs within a more general EU regulatory framework for such CCPs. The ESRB also proposed a number of specific tools (including macroprudential measures) to help build resilience against systemic risks stemming from over-reliance on third-country CCPs, foster the rebalancing of exposures between the United Kingdom and the EU and incentivise EU-based clearing.

The ESRB also contributed to ESMA's review of the systemic importance of 22 third-country CCPs that had been classified as Tier 1 CCPs by ESMA. The tiering of CCPs is based on a set of quantitative indicators laid down in the relevant Commission Delegated Regulation. As these CCPs all remained below the relevant thresholds, the ESRB concluded that they should remain Tier 1.

Also in December 2021, the ESRB Secretariat responded to ESMA's consultation on the exemption from the clearing obligation for pension scheme arrangements (PSAs). Under Article 85(2) of EMIR, ESMA is required, in cooperation with the ESRB, to submit a report every 12 months on potential central clearing solutions for PSAs. PSAs have been exempted from the clearing obligation since the adoption of EMIR in 2012. This temporary exemption has been renewed three times but will expire on 18 June 2022. In its response, the ESRB Secretariat proposed phasing out the exemption for PSAs in order to support a broad application of the clearing obligation, as stated in previous opinions. The ESRB Secretariat also noted that PSAs' funds were operationally ready to clear, as reported in ESMA's note on PSAs' clearing.

In March 2022 the ESRB Secretariat responded to ESMA's consultation on proposed changes to a regulatory technical standard in respect of the procyclicality of initial margins. These changes are aimed at amending the requirements that are applicable to CCPs when addressing the procyclicality of initial margins. The ESRB Secretariat's response noted that although the EU's regulatory framework addressing procyclicality was one of the most advanced in the world, the COVID-19 crisis had highlighted areas where the framework could be further improved. The ESRB has repeatedly indicated the need to address procyclicality in initial margining and across all CCP practices, most recently in its **2020 Recommendation**. In its response, the ESRB Secretariat also pointed to other parts of the anti-procyclicality framework in EMIR that could be revised. These included considerations relating to client clearing, proportionality and the use of buffer exhaustion strategies that are relevant from a financial stability perspective.

2.3.3 Investment funds

The review period saw the ESRB, together with the European Commission and ESMA, participate as an auditee in a European Court of Auditors (ECA) audit of the EU investment fund sector. The audit looked at whether the EU had created a true single market for investment funds that ensured investor protection and financial stability. The ECA did not address any recommendations to the ESRB. In its **report**, the ECA noted, among other things, that ESMA and the ESRB had not fully explored the possibility of using existing data collected by central banks, and instead used less reliable data from commercial providers.

In March 2022 the ESRB sent letters to the European Parliament and the Council regarding the European Commission's proposed amendments to the AIFMD. Those letters compared the proposals made by the ESRB in its **response to the European Commission consultation on the review of the AIFMD** in January 2021 with the subsequent proposal made by the European Commission. The letters noted that the European Commission's proposal reflected most of the considerations that had been presented by the ESRB. The letters also highlighted three areas that had not been addressed, where the ESRB felt that EU co-legislators could take the opportunity to enhance the proposal made by the European Commission. First, the letters indicated that addressing liquidity mismatches in open-ended alternative investment funds (AIFs) which invested in inherently less-liquid assets was a priority. Second, they emphasised the need to establish data-sharing arrangements and high-frequency reporting in crisis situations for the benefit of all authorities with macroprudential mandates (including the ESRB). Third, they called for further clarification regarding the operationalisation of leverage limits for AIFs.

Box 6

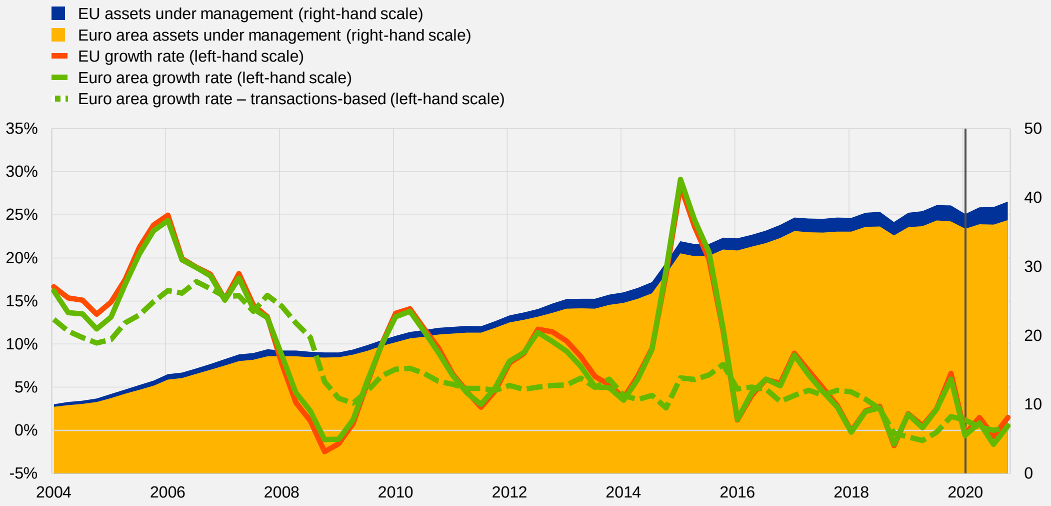
The monitoring of risks relating to non-bank financial intermediation

In August 2021 the ESRB published the "EU Non-bank Financial Intermediation (NBFI) Risk Monitor 2021", which summarised its monitoring of systemic risks and vulnerabilities relating to non-bank financial intermediation. The EU's non-bank financial sector initially declined in size in the first quarter of 2020 following the start of the COVID-19 pandemic, but it had recovered by the end of that year. At the end of 2020, the total value of assets under management in investment funds and other financial institutions in the EU stood at €39.4 trillion (with a figure of €36.7 trillion being recorded for the euro area). These figures represented increases of 1.5% and 0.5% for the EU and the euro area respectively relative to the end of 2019 (Chart A). The NBFI Risk Monitor 2021 discussed several structural and cyclical risks of non-bank financial intermediation, concluding that liquidity and maturity transformation within the investment fund sector had continued to be a source of risk. It showed, for example, that MMFs remained vulnerable to the low liquidity of the private money market instruments in which they invest – a vulnerability which the ESRB's recommendation on MMFs (see Section 2.3.1) seeks to address. Moreover, the report found that bond funds' cash holdings had declined further, while their exposure to credit risk had deteriorated.

Chart A

Assets under management in EU and euro area investment funds and other financial institutions

(right-hand scale: EUR trillions; left-hand scale: annual percentage changes)



Sources: ECB and ECB calculations.
Note: The latest observation is for the fourth quarter of 2020.

The NBFI Risk Monitor 2021 also included three special features providing in-depth analysis of particular issues as regards the monitoring of risks in the non-bank financial sector. One special feature focused on the liquidity mismatches and leverage of investment funds investing in CRE in the light of vulnerabilities in the CRE market stemming from the COVID-19 pandemic. Another special feature considered the role of the insurance sector in non-bank financial intermediation, highlighting insurers' involvement in credit intermediation, interconnectedness with other non-banks, and interconnectedness across markets via derivative positions. The third special feature reported on the GameStop short squeeze, the insolvency of Greensill Capital and the collapse of Archegos, which had shown how leverage, concentration and liquidity risks can materialise and spread through the financial system.

2.3.4 Stress tests scenarios

The review period saw the ESRB provide adverse scenarios for stress tests conducted by ESAs with a view to assessing risks in the financial system. With the support of the ECB, and in close cooperation with the relevant ESA, the ESRB provided narratives and calibration for the adverse scenarios for these stress tests. The scenarios reflected the ESRB's assessment of the risks and key vulnerabilities in the financial system at the relevant point in time. Owing to differences between the business models and risk profiles of the various types of financial institution, which mean that they are vulnerable to different types of shock, each scenario was tailored to the specificities of the financial sector concerned and the focus of the stress test in question. The ESRB provided three different adverse scenarios during the review period of this annual report.[21]

In June 2021 the ESRB provided the adverse scenario for ESMA's 2021 EU-wide CCP stress test. The narrative for that scenario was based on concerns around the evolution of the COVID-19 pandemic and its economic consequences. In particular, the scenario featured adverse confidence effects that prolonged the global economic contraction. This, in turn, led to renewed concerns about the sustainability of public and private debt in Europe, causing a sharp increase in credit risk premia and a widening of credit spreads. The scenario assumed that the widespread downsizing of firms and rating downgrades would trigger large-scale fire sales in the non-banking sector. **ESMA's stress test** covered 13 EU CCPs and two UK CCPs. The results are due to be published in the second half of 2022.

In December 2021 the ESRB provided the adverse scenario for ESMA's 2021 MMF stress testing guidelines. The narrative for that scenario reflected uncertainty about (i) the rollout and effectiveness of vaccines as regards variants of the coronavirus and (ii) the persistence of global supply chain problems. As with the scenario designed for ESMA's 2020 CCP stress test, shocks involved one-off, instantaneous shifts in asset prices following triggers initiated in various market segments.

In March 2022 the ESRB provided a climate risk scenario for the European Insurance and Occupational Pensions Authority's (EIOPA's) EU-wide occupational pension fund stress test. Climate risk is one of the risk priorities identified by the ESRB, and this was the first time that the ESRB had provided a climate-related scenario for a stress test conducted by an ESA. The narrative for this scenario reflected a delayed transition to a green economy, and it was calibrated on the basis of the scenario developed by the Network for Greening the Financial System (NGFS). Reflecting the one-year horizon of the stress test for occupational pension funds, the NGFS's delayed transition scenario was adapted by compressing the first three years of that scenario into a single year.

2.3.5 Insurance sector

In December 2021 the ESRB published a report on the financial stability implications of IFRS 17 Insurance Contracts. IFRS 17 is the new accounting standard for insurance contracts which will enter into force on 1 January 2023. The ESRB's report noted that IFRS 17 was expected to make a substantial contribution to financial stability by promoting internationally

[21] The ESRB publishes all the scenarios used for such regulatory stress tests on its **website**.

comparable accounting practices and by increasing transparency in the insurance sector. The increase in transparency relates to the new requirement to compute together the contractual service margin of groups of insurance contracts originated in the same year (annual cohort requirement). The report also identified three areas that may require follow-up measures to ensure that the financial stability benefits of the implementation of IFRS 17 are reaped in full. First, the large weight of the unobservable component of discount rates under IFRS 17 may necessitate close scrutiny by audit firms, accounting enforcers and supervisors. Second, the wide range of possible accounting policies under IFRS 17 for the calculation of the risk adjustment could hamper comparisons across countries and sectors. Third, the voluntary exemption from the annual cohort requirement has the potential to reduce the transparency that IFRS 17 is meant to bring about.

In February 2022 the ESRB sent letters to the European Parliament and the Council regarding the European Commission's proposed amendments to Solvency II. Those letters compared the proposals that had been made by the ESRB in its response to the European Commission consultation on the review of Solvency II in January 2021 with the subsequent proposal made by the European Commission. The letters noted that the European Commission's proposal was a good starting point, in that it reflected many – albeit not all – of the elements that the ESRB had identified with a view to addressing risks to financial stability. The letters also highlighted issues that had not been addressed and areas where the ESRB felt that EU co-legislators could take the opportunity to enhance the proposal made by the European Commission. The letters made four key points in this regard. First, they highlighted the risk that insurers' solvency ratios would be overstated in the low interest rate environment and suggested a more market-based method for deriving risk-free discount rates. Second, they emphasised that in exceptional circumstances (e.g. where there is a risk that insurers could try to conserve capital through de-risking) supervisory powers are needed in order to impose market-wide restrictions on the distribution of profits. Third, they pointed to the need to better align the prudential treatment of mortgage loans in Solvency II with the credit risk framework for the banking sector, as well as the importance of BBMs for mortgage lending to address the risk of foreclosures when real estate bubbles burst. Fourth, they drew on the experience gained at the start of the COVID-19 pandemic in March 2020, pointing to the risks stemming from insurers' procyclical investment behaviour and the importance of improving the existing mechanisms in Solvency II (including more symmetrical countercyclical measures).

2.4 Getting ready for new challenges

The ESRB has made progress on tackling "hybrid risks" (i.e. more general risks that could also affect the financial sector), particularly financial risks relating to climate change, crypto-assets and DeFi.

2.4.1 Financial risks relating to climate change

In July 2021 the ECB and the ESRB published a joint report that looks closely at the ways in which a broad set of climate change drivers affect thousands of financial firms in the EU and millions of firms around the world. It maps out potential financial stability risks and contributes to the development of an analytical basis for more targeted and effective policy action.

The report tackles measurement gaps and, building on previous work in this field, establishes a detailed topology of physical and transition risks arising from climate change across regions, sectors and firms. It also uses scenario analysis with long-dated financial risk horizons to capture prospective financial losses resulting from the timeliness and effectiveness of climate policies and technologies.

The report maps financial exposures to climate change drivers at a granular level and outlines three areas where risks are concentrated:

- First, exposures to physical risks relating to climate change are concentrated at regional level. Analysis shows, for example, that river floods will be the most economically significant driver of climate risk in the EU over the next two decades, with that risk being compounded in some regions by strong vulnerability to wildfires, heat and water stress. Around 30% of the euro area banking sector's total credit exposures to NFCs involve firms that are subject to one or more of these physical hazards.

- Second, exposures to emission-intensive firms can be concentrated both across and within economic sectors. High-emission firms account for 11% of the euro area NFC loan portfolio. While such firms are mainly concentrated in the manufacturing, electricity, transport and construction sectors, they also vary considerably within sectors – suggesting that there is some scope for financial market repricing as the current high levels of variance in emission intensity decline in the future.

- Third, exposures to climate risk drivers are concentrated in specific European financial intermediaries. Around 70% of the banking system's total credit exposures to firms that will be subject to high or increasing physical risks over the coming decades are concentrated in the portfolios of just 25 banks. At the same time, the scope for financial market repricing associated with transition risk will be particularly large for investment funds, as more than 55% of their investments are in high-emission firms. Only 1% of assets are estimated to be aligned with the EU taxonomy. While insurers' direct holdings of climate-sensitive assets may be manageable, risks could be amplified by cross-holdings of investment funds of around 30%.

Long-term scenario analysis for EU banks[22], insurers and investment funds suggests that credit and market risk could increase as a result of a failure to effectively counteract global warming. In the event of an insufficiently orderly climate transition, scenario modelling suggests that losses resulting from physical risks – particularly for high-emission firms – would become the dominant form of loss in around 15 years' time. This could result in global GDP declining by up to 20% by the end of the century if mitigation measures prove to be insufficient or ineffective.

Since the publication of the report in July 2021, the ESRB and the ECB have been working on addressing remaining analytical needs, notably in the areas of measurement and methodologies. Work is also ongoing on mapping the growing body of evidence to macroprudential policy considerations.

[22] Benchmark high-level scenarios established by NGFS.

2.4.2 Crypto-assets and decentralised finance

The rapid growth of crypto-assets and DeFi has been attracting increasing attention among regulators and policymakers, including as regards the role of the ESRB in this area.[23] DeFi expands the use of blockchain, taking it from simple value transfers to more complex financial use cases, building on decentralised applications and smart contracts. The relevance of crypto-assets and DeFi in terms of investor protection – as well as broader policy goals, such as tackling illicit activities – is well understood. However, the implications for financial stability may be less clear. A priori, the fact that crypto-assets and DeFi use automated protocols that do not rely on traditional financial intermediaries does not eliminate standard risks to financial stability, such as those arising from excessive leverage, liquidity mismatches and interconnectedness.

In order to safeguard financial stability, regulators and supervisors may therefore need to adopt a more activity-based approach to ensure that these new activities are covered. At the same time, some crypto-assets and new forms of intermediation may feature novel interaction between both financial and non-financial activities and entities, including fintech companies and big tech firms. The regulatory paradigm of "same activity, same regulation" may prove to be inadequate in the face of these new and unfamiliar forms of interaction. The work of the ESRB European Systemic Cyber group and the analysis in the **ASC report on digitalisation and the future of banking** are both relevant for crypto-assets and DeFi.

An ESRB joint ATC-ASC High-Level Exploratory Group on Crypto-Assets and Decentralised Finance was established in February 2022. Its aim is to explore the scope and necessity of future analytical work by the ESRB on the systemic implications of private-sector crypto-asset markets and DeFi applications for the stability of the EU financial sector, paving the way for an assessment of any need for policy work in this area. In defining the scope and priorities for the analysis of crypto-assets and DeFi from a financial stability perspective, the HLEG aims to identify mechanisms (both old and new), vulnerabilities and risks that can make crypto-assets and DeFi a source of systemic risk or a threat to financial stability. In setting policy priorities for the ESRB in this area, the HLEG will look at the ways in which prudential policies can address these risks and attempt to identify the areas where the ESRB, with its broad European membership and its capacity to act through warnings and recommendations, may best complement and deepen ongoing policy work at EU level and beyond. The HLEG will take account of the ongoing efforts that are being made internationally in various jurisdictions with regard to the treatment of crypto-assets and DeFi, focusing on adding value from a macroprudential perspective.

[23] See McGuinness, M., "**The ESRB at 10 years – key achievements and future challenges**", keynote address at the fifth ESRB Annual Conference, 8 December 2021.

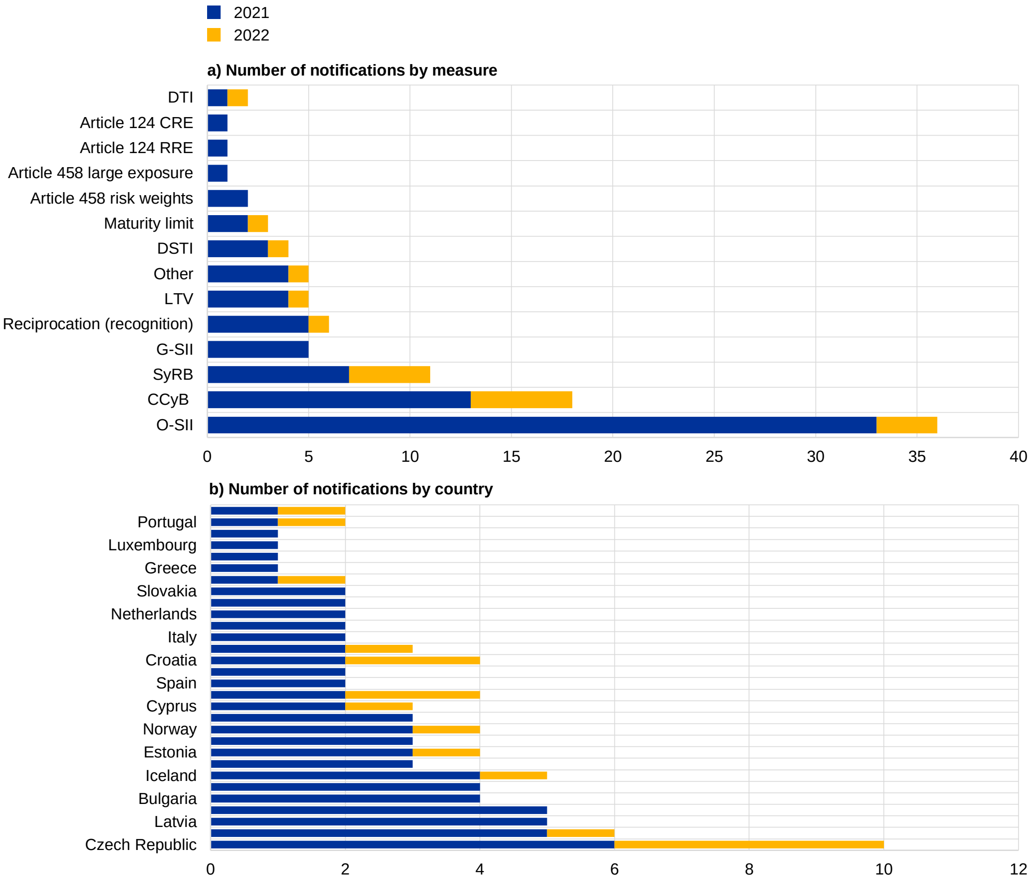
3 Review of national measures

This section provides an overview of measures adopted or publicly announced by EEA countries during the review period (Chart 13). Given its broad mandate and EEA-wide perspective, the ESRB is well placed to act as an information hub for macroprudential measures adopted by its member countries. Several such measures notified to the ESRB were published on the ESRB's website. In this section, actions taken by EEA countries in the review period are ordered by type of instrument used.

Chart 13

Notifications received by the ESRB between April 2021 and March 2022 by type of measure and by country

(number of notifications)



Source: ESRB.

Note: Only measures adopted or publicly announced during the review period and before the cut-off date of 31 March 2022 have been included.

3.1 Overview of measures

Broadly speaking, during the period under review, several countries started to tighten their macroprudential policies, in particular by rebuilding capital buffers. A small number of countries adopted BBMs, by introducing new BBMs (Iceland), extending previously applicable BBMs (Lithuania) or re-introducing BBMs suspended between April and June 2020 owing to the COVID-19 pandemic (the Czech Republic). Ten countries adjusted their CCyB rate, either by activating it for the first time or by increasing the rate. In the light of the introduction of the latest amendments to the Capital Requirements Directive (CRD V), some countries decided to address their structural risks through other systemically important institution (O-SII) buffer rates alone and therefore de-activated applicable SyRBs at the same time. Finally, a number of countries applied stricter national measures (under Article 458 of the CRR) or made use of the newly available sectoral SyRB.

3.2 Borrower-based measures

Against the backdrop of increasing vulnerabilities in the real estate market, seven countries adjusted their BBMs. National authorities adopted a wide range of measures, including LTV, debt-to-income (DTI), debt-service-to-income (DSTI) and maturity limit caps. Cyprus complemented an existing LTV limit with a specific limit for luxury homes. The Czech Republic and Finland restored their LTV limits to pre-pandemic levels, after having relaxed these measures during the COVID-19 crisis. Lithuania tightened LTV limits for second and subsequent mortgage loans. On the income side, Iceland introduced a DSTI measure to tackle vulnerabilities related to accumulating debt. Latvia extended the application of its comprehensive set of BBMs (LTV, DSTI, DTI and maturity limits). France turned its existing BBMs into legally binding measures. Portugal tightened its maturity limit on mortgage loans. Finally, in November 2021 the Czech Republic announced its decision to re-introduce BBMs and to make them legally binding as of April 2022.

3.3 Risk weights

Two countries (Ireland and Poland) notified relaxations of stricter national measures under Article 124 of the CRR. In addition, the authorities in Estonia and Sweden notified measures based on Article 458 of the CRR on which the ESRB has issued opinions.

On 18 May 2021 Eesti Pank notified the ESRB of its intention to extend the application of a stricter national measure concerning risk weights under Article 458(2)(d)(vi) of the CRR. The measure was a two-year extension of a credit institution-specific minimum level of 15% for the exposure-weighted average of the risk weights applied to the portfolio of retail exposures secured by mortgages on immovable property to obligors residing in Estonia. The measure applies to credit institutions that use the internal ratings-based (IRB) approach for calculating regulatory capital requirements. The existing measure entered into force on 30 September 2019. Pursuant to Article 458(4) in conjunction with Article 458(9) of the CRR, the ESRB provided the Council, the European Commission and Estonia with an opinion on 17 June 2021. The ESRB was of the view that the proposed extension of the measure may help to maintain capital adequacy in IRB credit institutions in Estonia so as to mitigate a possible materialisation of systemic risk in the RRE market. While systemic RRE risk in Estonia has increased in recent years, the measure was nonetheless pre-emptive, as it was aimed at ensuring that banks hold sufficient own funds to cover systemic risks should they materialise. The ESRB was also of the view that the alternative macroprudential instruments listed in Article 458 of the CRR would not be appropriate to address the risk at hand, given the uncertainty about the impact of the COVID-19 pandemic on the economy at the time of the assessment. Overall, the ESRB was of the opinion that the extension of the measure would not entail disproportionate adverse effects for the internal market or the financial systems of other Member States. The measure would prevent a further decline in risk weights applied by IRB credit institutions to their portfolios of Estonian mortgage loans. Eesti Pank did not request the reciprocation of the extended measure by other Member States, given the limited activity levels and market shares of foreign branches in the Estonian mortgage market.

On 20 September 2021 the Swedish Financial Supervisory Authority (Finansinspektionen) notified the ESRB in accordance with Article 458(2)(d)(iv) of the CRR of its intention to extend a national measure limiting risks stemming from Swedish mortgage loans. The measure consists of a risk weight floor of 25% for Swedish mortgage loans applied to credit institutions that use the IRB approach. Pursuant to Article 458(4) in conjunction with Article 458(9) of the CRR, the ESRB provided the Council, the European Commission and Sweden with an opinion on 20 October 2021. The assessment was made against the backdrop of increasing vulnerabilities in the Swedish RRE market. The ESRB was of the view that the alternative macroprudential instruments listed in Article 458 of the CRR, which must be considered before any stricter national measure can be taken, would not be adequate to address the risk at hand. Therefore, the ESRB was of the view that the stricter measure was justified, suitable, proportionate, effective and efficient for the purpose mentioned above. Overall, the ESRB considered that the measure would not entail disproportionate adverse effects for the internal market or other financial systems. The economic assessment that accompanied the opinion also highlighted the importance of continued reciprocation of the measure by other Member States with credit institutions active in the Swedish residential mortgage market.

3.4 Countercyclical capital buffer

Eleven countries adjusted their CCyB rates in order to help counter rising cyclical risks. Bulgaria, the Czech Republic, Denmark and Norway reacted with multiple and gradual increases in their buffer rates. France, Germany, Iceland and Sweden each adjusted their rates just once. Estonia, Croatia and Romania activated CCyB rates for the first time at 1%, 0.5% and 0.5% respectively.

A limited number of countries restored their CCyB to pre-pandemic levels, while five countries increased their buffer beyond pre-pandemic levels. Bulgaria, Denmark and Norway restored their CCyB rate to pre-pandemic levels (1.5%, 2% and 2.5% respectively), while the Czech Republic, Germany, Estonia, France, Croatia and Romania increased their CCyB rates to levels above those applicable before the pandemic. Sweden increased its CCyB rate to 1.0% (compared with 2.5% before the pandemic), while a number of other countries that relaxed their CCyB rates during the COVID-19 crisis have not yet taken any action to rebuild this buffer.

EU capital rules for banks also allow the setting of rates for exposures to third countries. Given the very large number of third countries to which this measure could apply, the ESRB, the ECB and EU Member States focus on identifying and monitoring material countries and share responsibility for this task. In order to implement a coherent approach across the EU, the ESRB has provided details of its approach in a recommendation and a decision.[24] In particular, the ESRB establishes the list of third countries to which the EU banking system as a whole has material exposures and monitors developments in those countries. Since 2020 the identification sample has been extended from the EU to the whole of the EEA.[25]

The ESRB reviewed the list of material third countries that it had established in 2020 and confirmed that the only change to the list was the addition of the United Kingdom. Following the withdrawal of the United Kingdom from the EU on 31 January 2020 and the end of the transition period on 31 December 2020, the United Kingdom became a third country. Thus, the list of material third countries published in 2021 comprises Brazil, China, Hong Kong, Mexico, Russia, Singapore, Switzerland, Turkey, the United Kingdom and the United States. In line with Recommendation ESRB/2015/1, individual EEA countries identified material third countries and reviewed their lists in 2021 on the basis of their respective existing methodologies.

3.5 Systemic risk buffer

The Czech Republic and Estonia decided to de-activate their SyRBs. During the spring of 2020, in reaction to the COVID-19 crisis, Eesti Pank reduced its SyRB rate from 1% to 0%. Following a review of the country’s macroprudential policy framework and the related decision to activate a CCyB rate at the end of 2021, Estonian authorities decided to de-activate the SyRB altogether. In October 2021, following the adoption of CRD V, Česká národní banka decided to de-activate its SyRB, as the risk previously addressed through the SyRB will in future be addressed through the setting of O-SII buffer rates.

Belgium, Germany and Lithuania introduced a sectoral SyRB to address vulnerabilities related to the real estate market. In November 2021 Lietuvos bankas introduced a 2% sectoral SyRB for exposures to natural persons secured by RRE. The measure will apply at the highest level of consolidation for all banks and central credit unions authorised in Lithuania that exceed the set materiality threshold. In the first quarter of 2022 the German Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht* – BaFin) announced the introduction of a 2% sectoral SyRB for all exposures to natural and legal persons secured by residential property in Germany as of 1 February 2023. Before the cut-off date of 31 March 2022, Nationale Bank van België/Banque Nationale de Belgique notified the ESRB that it planned to introduce a sectoral SyRB of 9% for banks using the internal ratings-based approach on all retail exposures to natural persons secured by RRE located in Belgium, applicable from 1 May 2022.

[24] **Recommendation of the European Systemic Risk Board of 11 December 2015 on recognising and setting countercyclical capital buffer rates for exposures to third countries (ESRB/2015/1)** and **Decision of the European Systemic Risk Board of 11 December 2015 on the assessment of materiality of third countries for the Union’s banking system in relation to the recognition and setting of countercyclical buffer rates (ESRB/2015/3)**.

[25] The definition of a third country in Decision ESRB/2015/3 (i.e. any country outside of the EEA), combined with the fact that since 1 January 2020 the macroprudential tools of the CRD and the CRR have been applicable in Iceland, Liechtenstein and Norway, implied the need to include all EEA countries in the identification sample. See **Decision of the EEA Joint Committee No 79/2019 of 29 March 2019 amending Annex IX (Financial services) to the EEA Agreement [2019/2133] (OJ L 321, 12.12.2019, p. 170)**.

3.6 Buffers for systemically important institutions (O-SIIs and G-SIIs)

With effect from the start of 2022, 175 O-SIIs were identified in the EEA, although there was some heterogeneity across countries. With the exception of two financial corporations in Norway, all the institutions identified as O-SIIs were banks. The lowest O-SII buffer rate applicable to institutions was 0.0% (in Latvia)[26], while the highest was 3% (in Denmark). For a variety of reasons, the list of O-SIIs changed. In some cases, national authorities removed some institutions from the list following mergers between banks. Moreover, the transposition of CRD V into national legislation led some countries to adjust their macroprudential policy buffer decisions, in some cases altering the interactions between various macroprudential buffers (e.g. the Czech Republic suspended its SyRB and instead addressed risks associated with systemically important banks through O-SII buffer rates).

For 2022 eight global systemically important institutions (G-SIIs) were identified across five EEA countries. G-SII institutions were identified in France (four), Germany (one), Italy (one), the Netherlands (one) and Spain (one). Six of the eight banks were assigned a G-SII buffer rate of 1%, while the other two banks were assigned a buffer rate of 1.5%, with one of the latter two having its buffer rate increased to 2% in 2023.%.

3.7 Other measures

The French High Council for Financial Stability (Haut Conseil de stabilité financière – HCSF) notified the ESRB of its intention to extend the period of application of its current macroprudential measure based on Article 458(2)(d)(ii) of the CRR. The aim of the measure is to limit concentration risk with regard to highly indebted large NFCs with a registered office in France. The measure was first activated on 1 July 2018 for two years and had already been extended for one year as of 1 July 2020. The latest extension of the measure differed from the original measure as a result of a change in the definition of large exposures following the application of **Regulation (EU) 2019/876** (CRR II). On 25 May 2021 the ESRB provided the Council, the European Commission and France with an opinion pursuant to Article 458(4) of the CRR. The ESRB was of the view that the proposed extension of the measure served as a helpful backstop to ensure risk diversification and safeguard the resilience of the French banking system. The ESRB supported the HCSF’s intention to extend the period of application of its stricter national measure, with the modified calculation of exposures derived from CRR II. The ESRB was of the view that the alternative macroprudential instruments listed in Article 458 of the CRR, which must be considered before any stricter national measure can be taken, would not be adequate to address the risk at hand. Therefore, the ESRB was of the view that the stricter measure was justified, suitable, proportionate, effective and efficient for the purpose mentioned above. Overall, the ESRB considered that the measure would not entail disproportionate adverse effects for the internal market or other financial systems. The economic assessment accompanying the opinion also highlighted the importance of continued reciprocation of the measure by other Member States with credit institutions exposed to the risks posed by NFCs’ indebtedness in France.

[26] The 0% buffer applies to one bank in Latvia in 2022. The bank was identified as an O-SII starting from 2022 and should maintain an O-SII buffer of 0.25%, which is applicable from 2023 due to phasing in.

In June 2021 Hungary notified the ESRB of an amendment to its Mortgage Funding Adequacy Ratio Regulation. The new decree introduced climate change aspects into the Regulation with the aim of achieving regulatory goals related to Hungarian forint maturity mismatches along with the development of the mortgage bond market.

Banka Slovenije notified the ESRB that it had extended its recommendation of a temporary restriction on the distribution of distributable profits and retained earnings generated in 2019 and 2020 by leasing companies. The purpose of this measure is to increase the resilience of the financial system to financial shocks, maintain financial stability, prevent disruption to the financial system in Slovenia and reduce the build-up of systemic risks. The measure was not extended after 30 September 2021.

3.8 Reciprocation

In line with the ESRB's reciprocity framework, the ESRB recommended the reciprocation of a national measure under Article 458(2)(d)(vi) of the CRR by De Nederlandsche Bank. This measure was initially planned for 2020, but was postponed owing to the COVID-19 pandemic to 1 January 2022. The measure imposes on credit institutions that use the IRB approach for calculating regulatory capital requirements a minimum average risk weight applicable to any portfolio of exposures to natural persons secured by mortgages on residential property located in the Netherlands. The required minimum average risk weight for a portfolio is defined as the exposure-weighted average of the risk weights of the individual loans. For each individual exposure item that falls within the scope of the measure, a 12% risk weight is assigned to the portion of the loan not exceeding 55% of the market value of the property that serves to secure the loan, and a 45% risk weight is assigned to the remaining portion of the loan. Loans covered by the Dutch National Mortgage Guarantee (Nationale Hypotheek Garantie – NHG) scheme are exempt from the measure. In order to avoid leakages and regulatory arbitrage, the ESRB recommended the reciprocation of the measure with an institution-specific materiality threshold of €5 billion. This threshold corresponds to almost 1% of the total relevant exposure of all institutions reporting in the Netherlands being covered by the measure.

The ESRB also recommended the reciprocation of an SyRB for all retail exposures to natural persons in Lithuania secured by residential property. The measure consists of a sectoral SyRB of 2% on all retail exposures to resident natural persons secured by residential property. It is applicable from 1 July 2022 to all credit institutions whose relevant sectoral exposure exceeds a materiality threshold of €50 million (corresponding to 0.5% of the total relevant sectoral exposure of the banking sector in Lithuania as at the second quarter of 2021). The ESRB recommended the reciprocation of the measure with an institution-specific materiality threshold of €50 million for the relevant sectoral exposure, which is the same as the materiality threshold applied to credit institutions licensed in Lithuania.

Nationale Bank van België/Banque Nationale de Belgique also notified the ESRB before the cut-off date of 31 March 2022 of its request to reciprocate the sectoral SyRB. The analysis of the request went beyond the cut-off date of this report.

BaFin notified the ESRB of its reciprocation request concerning a sectoral SyRB on RRE exposures. For banks using the IRB approach, a sectoral SyRB rate of 2% applies to all exposures to natural and legal persons that are secured by residential immovable property located in

Germany, while for institutions using the standardised approach this rate applies to the fully and completely secured part of such exposures. The measure is applicable from 1 February 2023. The ESRB's assessment of the reciprocation request will be completed after the cut-off date of this report.

4 Institutional framework: implementation and accountability

This final section provides an overview of action taken to enhance the ESRB's accountability. First, it explores how compliance with the ESRB's recommendations is assessed by examining the results of the follow-up processes carried out in the review period. Second, it gives an account of the ESRB's reporting to the European Parliament and describes some of the events that the ESRB organised over the review period.

4.1 Assessment of compliance with ESRB recommendations

ESRB recommendations are not legally binding, but they are subject to a "comply or explain" regime in accordance with Article 17 of the ESRB Regulation. This means that the addressees of recommendations – e.g. the EU as a whole, Member States, the ESAs, national authorities, designated authorities, resolution authorities, the ECB, the Single Resolution Board (SRB) and the European Commission – have an obligation to communicate to the European Parliament, the Council, the Commission and the ESRB the actions that they have taken to comply with a recommendation, or to provide adequate justification in the case of inaction. Assessing compliance with ESRB recommendations is key to effective implementation of measures taken by the ESRB. Assessment Teams composed of experts from the ESRB's member institutions are formed to conduct these compliance assessments. Thus, for the conduct of the assessments, the ESRB relies on support from its member institutions.

4.1.1 Assessment of compliance with Recommendation ESRB/2020/8

On 27 May 2020 the ESRB issued Recommendation ESRB/2020/8 on monitoring the financial stability implications of debt moratoria, and public guarantee schemes and other measures of a fiscal nature taken to protect the real economy in response to the COVID-19 pandemic. Recommendation A aims to ensure that national macroprudential authorities monitor and assess the financial stability implications of COVID-19-related measures taken by their Member States to protect the real economy, while Recommendation B establishes a framework for national macroprudential authorities to conduct regular reporting of the information necessary for the ESRB to monitor and assess the implications of the national measures. A compliance report on the implementation of Recommendation B was published by the ESRB in July 2021.

Overall, the degree of compliance by addressees with the requirements of Recommendation B was high and consistent. The assessment revealed that national authorities regularly reported the information necessary for the ESRB to monitor and assess the implications of the national fiscal measures for financial stability in the EU. This enabled the ESRB to continuously monitor the financial stability implications of the measures and to publish, in February

2021, **a report on financial stability implications of support measures to protect the real economy from the COVID-19 pandemic**.

4.1.2 Assessment of compliance with Recommendation ESRB/2019/18

On 26 September 2019 the ESRB issued Recommendation ESRB/2019/18 on exchange and collection of information for macroprudential purposes on branches of credit institutions having their head office in another Member State or in a third country. In view of the increasing provision of cross-border financial services via branches within the EU, Recommendation ESRB/2019/18 aims to enhance the exchange and collection of information on branches for macroprudential and financial stability purposes. A compliance report on the interim implementation of Recommendation A was finalised in September 2021 and the related summary compliance report was published in October 2021.

While the overall findings point to a high degree of compliance with Recommendation A, it is worth noting that, as regards sub-recommendation A(1), only a few requests for information for macroprudential purposes on branches of credit institutions having their head office in another Member State or in a third country were sent or received within the assessment period (i.e. between December 2019 and December 2020).

4.1.3 Assessment of compliance with Recommendations ESRB/2019/4 to ESRB/2019/9

In 2019 the ESRB issued six recommendations addressed to six Member States (Belgium, Denmark, Luxembourg, the Netherlands, Finland and Sweden) to address medium-term vulnerabilities related to RRE. An assessment based on information provided by the addressees as at 31 March 2021 and 31 October 2021 was performed in the fourth quarter of 2021 and the resulting compliance report was published in February 2022.

The compliance assessment findings are as follows: Luxembourg was assessed as fully compliant; Belgium, Denmark and Sweden were assessed as largely compliant; and the Netherlands and Finland were assessed as partially compliant. Relative to the previous assessment, the compliance of Denmark, Finland and Sweden was downgraded by one level. The Assessment Team could no longer accept the avoidance of procyclical effects from the activation or tightening of macroprudential tools at the start of the COVID-19 pandemic as an appropriate and sufficient reason not to implement the recommendations.

Moreover, in contrast to the previous compliance report, there is now clear evidence that risks to financial stability are building up in the RRE sector, and vulnerabilities can potentially be amplified by a robust growth performance of the economy, which is still expected but may be lower due to the Russian invasion of Ukraine, and the decline in uncertainty related to the pandemic. Overall, the number of inactions, as opposed to actions, fell substantially when compared with the previous compliance report. In the large majority of cases, the reversal of inactions resulted from the implementation or activation of the recommended measures after the easing of the COVID-19 crisis.

4.1.4 Assessment of compliance with Recommendation ESRB/2015/1

Recommendation ESRB/2015/1 aims to promote a coherent approach across the Union to recognising and setting CCyB rates for exposures to third countries in order to protect the banking sector in EU Member States from risks associated with excessive growth of credit to the private non-financial sector in third countries and to ensure a level playing field within the Union and prevent regulatory arbitrage. A summary compliance report covering both rounds of assessment is expected to be published in the second quarter of 2022.

The Assessment Team noted that several sub-recommendations within the scope of this assessment were in practice not applicable because the situations envisaged as triggers for recommended actions on the part of the national designated authorities did not occur in the period under examination (the cut-off date for which was 31 December 2020). Nonetheless, where sub-recommendations were applicable, the actions taken by addressees were regarded as compliant in almost all cases. Consequently, all addressees were graded as fully compliant with the overall recommendation.

4.1.5 Assessment of compliance with Recommendation ESRB/2020/7, as amended by Recommendation ESRB/2020/15

The ESRB issued Recommendation ESRB/2020/7 on restriction of distributions during the COVID-19 pandemic (subsequently amended by Recommendation ESRB/2020/15), asking relevant authorities to request financial institutions under their supervisory remit to refrain from taking any actions which have the effect of reducing the quantity or quality of their own funds unless extreme caution is applied when carrying out any of those actions and the resulting reduction does not exceed the conservative threshold set by the competent authority. Such actions include dividend distributions or irrevocable commitments to make a dividend distribution, buy-backs of ordinary shares and the creation of an obligation to pay variable remuneration to a material risk taker. The addressees' compliance with the recommendation is currently being assessed on the basis of the addressees' reporting, which was due by 15 October 2021. A summary compliance report is expected to be published in the course of 2022.

4.1.6 Assessment of compliance with Recommendation ESRB/2020/6

On 25 May 2020 the ESRB issued Recommendation ESRB/2020/6 on liquidity risks arising from margin calls. A compliance report on the implementation of Recommendations A, B(2), B(3), B(4) and C was finalised in November 2021.

Overall, the recommendation was complied with to a significant degree, at least in relation to the provisions to be implemented by 30 November 2020. The results of the assessment show a certain degree of homogeneity across jurisdictions and concentration in some of them. The clearing of derivatives, whether carried out via CCPs or on a bilateral basis, appears to be material in some European jurisdictions but seems not to be a source of material concern in others. This helps to explain the very high number of “sufficiently explained” grades that resulted from the assessment.

The responses of the competent authorities were generally reassuring; only a few issues emerged and no points of potential systemic relevance were highlighted. The implementation of sub-recommendation B(1) and sub-recommendation D(1) is currently being assessed by the Assessment Team, which started its work in January 2022 following reporting from ESMA and the competent authorities. This exercise is expected to be completed in the third quarter of 2022.

4.1.7 Assessment of compliance with Recommendation ESRB/2016/14, as amended by Recommendation ESRB/2019/3

The objective of Recommendation ESRB/2016/14 is that national macroprudential authorities should implement a framework for monitoring developments in the real estate sector relevant for financial stability based on commonly agreed target definitions and indicators. Following a first round of reporting in 2019 and a second round of reporting in 2020, the ESRB produced a note in 2021 in response to interim reports on the implementation of Recommendations A to D, as well as a compliance report on the implementation of Recommendations A and B.

The assessment showed a large degree of compliance with Recommendations A and B, in terms of both the existence of a risk monitoring framework for the domestic RRE sector and the availability of relevant RRE risk indicators. By 31 December 2021, macroprudential authorities had delivered their final reports to the ESRB pursuant to Recommendations C and D, which concern the CRE sector. At the same time, the Commission (Eurostat) delivered an interim report to the ESRB in respect of Recommendation F. This round of assessment of the follow-up to the recommendation is ongoing and is expected to be completed in the course of 2022.

4.1.8 Assessment of compliance with Recommendation ESRB/2015/2

Recommendation ESRB/2015/2 is aimed at promoting a coordinated policy approach across borders within the EU and preventing financial service providers from circumventing national macroprudential measures. The recommendation contains a continuously updated list of macroprudential policy measures adopted by relevant authorities and recommended by the ESRB for reciprocation. The assessment of the follow-up to the recommendation started in the first quarter of 2018 based on information provided by addressees by 30 June 2017, and the resulting compliance report was finalised in July 2021.

This first assessment of the recommendation highlighted the diverse range of macroprudential instruments used – and policies pursued – by addressees to mitigate systemic risk and increase the resilience of the financial sector, thereby promoting financial stability. The recommendation has, in general terms, been fully implemented by the majority of addressees. A second assessment – based on information provided by addressees by 30 June 2021 – has not yet commenced.

4.1.9 Assessment of compliance with Recommendation ESRB/2017/6

Recommendation ESRB/2017/6 on liquidity and leverage risks in investment funds aims to address systemic risks related to liquidity mismatches and the use of leverage in investment funds. A compliance report on the implementation of Recommendations C (stress testing) and E (guidance on Article 25 of Directive 2011/61/EU), both of which are addressed to ESMA, was finalised in September 2021.

ESMA demonstrated a very high degree of compliance with Recommendations C and E. With regard to Recommendations A, B and D, which are addressed to the European Commission, an assessment of the level of compliance is expected to be completed in the fourth quarter of 2022.

4.2 Reporting to the European Parliament and other institutional aspects

In line with the ESRB's accountability and reporting obligations, the Chair of the ESRB attends hearings before the European Parliament's ECON Committee. During the period under review, the ESRB Chair attended one public hearing before ECON on 1 July 2021 and two confidential meetings with the Chair and Vice-Chairs of ECON to discuss risks to financial stability. All of these meetings were held remotely, owing to the COVID-19 pandemic.

During the public hearing the ESRB Chair provided Members of the European Parliament (MEPs) with an assessment of financial stability risks, focusing on the impact of the COVID-19 pandemic on NFCs. MEPs were informed of the ESRB reports on **the prevention and management of a large number of corporate insolvencies** and **the financial stability implications of support measures to protect the real economy from the COVID-19 pandemic**. The ESRB Chair also highlighted the General Board's view on the way forward for the ESRB recommendation on restriction of distributions during the COVID-19 pandemic, noting that if economic and financial sector conditions did not deteriorate materially, the recommendation could be allowed to lapse at the end of September 2021.

In her opening remarks, the ESRB Chair also presented the main features of two ESRB reports that were published on the day of the hearing: (i) an **issues note on money market funds** describing the systemic vulnerabilities of the sector and the broad range of policy options identified to address them (see Section 2.3.1) and (ii) the second **joint ECB/ESRB report on climate risk monitoring** (see Section 2.4.1). The **ESRB Annual Report 2020** was also published on the same day.

The ESRB Vice-Chair also reported regularly to the Economic and Financial Committee on the risk assessment. The Economic and Financial Committee is an EU committee set up to promote policy coordination among Member States. In addition, the Head and Deputy Head of the ESRB Secretariat regularly participate in meetings of the Boards of Supervisors of the ESAs. Finally, in 2021 the Head of the ESRB Secretariat also participated in a working group set up by the European Commission with EU authorities and the clearing industry to address the issues involved in reducing exposures to UK CCPs and to facilitate the transfer of derivatives contracts denominated in euro or other EU currencies to EU CCPs.

4.3 ESRB events and social media

On 29 April 2021 the ESRB organised a virtual seminar on corporate insolvencies and public support measures. This seminar took place in the context of the publication of an **ESRB report on preventing and managing a large number of corporate insolvencies** and benefited from the insights of Pablo Hernández de Cos (Governor of the Banco de España and Chair of the ATC), Claudia Buch (Vice-President of the Deutsche Bundesbank, Vice-Chair of the ATC and Chair of the ESRB drafting team for the ESRB reports on the financial stability implications of COVID-19 support measures to protect the real economy) and Ralf Jacob (European Commission, Co-Chair of the ESRB drafting team for the report on corporate insolvencies).

On 15 and 16 November 2021 the ESRB held its annual meeting with the Committee of European Auditing Oversight Bodies and statutory auditors of EU-based global systemically important financial institutions (G-SIFIs). This meeting is required by **EU law** in order to inform the ESRB of sectoral developments or any significant developments at G-SIFIs. Owing to the restrictions in place due to the COVID-19 pandemic, the meeting took place remotely. The discussion focused on the pandemic's impact on audit firms and the potential risks of hybrid auditing. The discussion also focused on third-party confirmations in the financial services sector.

The fifth ESRB Annual Conference took place on 8 December 2021 as a virtual event and was dedicated to the tenth anniversary of the ESRB. The conference was opened by the ESRB Chair, Christine Lagarde, followed by keynote speeches by Jean-Claude Trichet (Honorary Governor of the Banque de France, former President of the ECB and former ESRB Chair) and Mairead McGuinness (European Commissioner for Financial Services, Financial Stability and the Capital Markets Union). The conference included three sessions: the first was chaired by Stefan Ingves (Governor of Sveriges Riksbank and First Vice-Chair of the ESRB) and discussed a decade of macroprudential policy; the second was chaired by Richard Portes (professor at London Business School, member of the ASC and Co-Chair of the ESRB's Non-Bank Expert Group) and discussed non-bank financial intermediation fragilities and the way ahead; and the third was chaired by Pablo Hernández de Cos and discussed strengthening the financial system post-COVID-19. Video recordings are available on the **ESRB's website**. To mark the tenth anniversary of the ESRB, a short film was produced entitled "**Celebrating ten years of the ESRB**".

Each year the ASC awards the Ieke van den Burg Prize to recognise outstanding research conducted by young scholars on topics related to the ESRB's mandate. The prize was established in 2014 in memory of Ieke van den Burg, who was a member of the ASC (2011-14) and a member of the European Parliament (1999-2009). In 2021 the prize was awarded to Karsten Müller and Emil Verner for their paper entitled "Credit Allocation and Macroeconomic Fluctuations".

Finally, this was the first full year of the ESRB Twitter account, which was launched to promote awareness of the ESRB's work and publications. A full list of ESRB publications during the review period can be found in Annex.

The organisational structure of the ESRB comprises a General Board, a Steering Committee, an Advisory Scientific Committee (ASC), an Advisory Technical Committee (ATC) and a Secretariat. During the review period, François Villeroy de Galhau, Governor of the Banque de France, was elected as a new national member of the Steering Committee. Owing to the expiry of the mandates of Ignazio Visco, Governor of the Banca d'Italia, in December 2021, and Pierre Wunsch, Governor of the Nationale Bank van België/Banque Nationale de Belgique, in March

2022, Mário Centeno, Governor of the Banco de Portugal, and Lars Rohde, Governor of Danmarks Nationalbank, were elected as new national members with a three-year mandate from 15 March 2022. In addition, Professor Stephen Cecchetti replaced Professor Richard Portes as Vice-Chair of the ASC in March 2021 and Professor Loriana Pelizzon succeeded Professor Javier Suarez as Chair of the ASC in January 2022.[27] In March 2022 the General Board reappointed Professor Thorsten Beck, Professor Loriana Pelizzon and Professor Richard Portes to the ASC.

During the period under review, there were 17 active working groups within the ESRB. The ESRB Secretariat organised a total of 88 meetings of the General Board, Steering Committee, ASC and ATC and their main substructures, all of which were held remotely owing to the COVID-19 pandemic.

The ECB supports the work of the ESRB in various ways. The day-to-day business of the ESRB is carried out by its Secretariat. The Head of the ESRB Secretariat is Francesco Mazzaferro and the Deputy Head is Tuomas Peltonen. In accordance with **Council Regulation (EU) No 1096/2010**, the ECB ensures the functioning of the Secretariat of the ESRB, thereby providing the ESRB with analytical, statistical, logistical and administrative support. In 2021 the ECB provided the ESRB with support in the form of 63.4 full-time equivalent (FTE) staff. Of these, 31.9 FTEs were employed within the Secretariat and 31.5 FTEs provided other forms of support. The direct costs incurred by the ECB amounted to €9.9 million. The indirect costs for other support services shared with the ECB (such as human resources, IT and general administration) are in addition to this amount. Over the same period, other member institutions of the ESRB provided approximately 59.3 FTEs for analytical support in the context of ESRB groups and ESRB group chair positions.

[27] Professor Javier Suarez then became Vice-Chair of the ASC, together with Stephen Cecchetti.

Annex: Publications on the ESRB website from 1 April 2021 to 31 March 2022

Working papers

15/03/2022

Fluctuating bail-in expectations and effects on market discipline, risk-taking and cost of capital

29/12/2021

Life-cycle risk-taking with personal disaster risk

29/12/2021

Empirical analysis of collateral at central counterparties

15/12/2021

Prudential policy with distorted beliefs

15/12/2021

The role of systemic risk spillovers in the transmission of Euro Area monetary policy

01/12/2021

Banking networks and economic growth: from idiosyncratic shocks to aggregate fluctuations

01/10/2021

Do liquidity limits amplify money market fund redemptions during the COVID crisis?

15/09/2021

Synthetic Leverage and Fund Risk-Taking

15/09/2021

Determinants of the credit cycle: a flow analysis of the extensive margin

16/08/2021

A Multi-level Network Approach to Spillovers Analysis: An Application to the Maltese Domestic Investment Funds Sector

02/08/2021

Risky mortgages, credit shocks and cross-border spillovers

15/06/2021

Measuring the impact of a bank failure on the real economy: an EU-wide analytical framework

01/06/2021

Resolving mortgage distress after COVID-19: some lessons from the last crisis

01/06/2021

A quantitative analysis of the countercyclical capital buffer

10/05/2021

Investment funds, monetary policy, and the global financial cycle

10/05/2021

The impact of macroprudential policies on capital flows in CESEE

Occasional papers

01/09/2021

Growth-at-risk and macroprudential policy design

01/09/2021

The benefits of the Legal Entity Identifier for monitoring systemic risk

ESRB reports

31/03/2022

Review of the EU Macroprudential Framework for the Banking Sector – A Concept Note

11/02/2022

Vulnerabilities in the residential real estate sectors of the EEA countries

27/01/2022

Mitigating systemic cyber risk

25/01/2022

Report on the economic rationale supporting the ESRB Recommendation of 2 December 2021 on money market funds and assessment

17/12/2021

Report of the Analytical Task Force on the overlap between capital buffers and minimum requirements

13/12/2021

Financial stability implications of IFRS 17 Insurance Contracts

01/12/2021

Report of the Expert Group on Macroprudential Stance – Phase II (implementation)

08/09/2021

Monitoring the financial stability implications of COVID-19 support measures

30/08/2021

EU Non-bank Financial Intermediation Risk Monitor 2021

01/07/2021

A Review of Macroprudential Policy in the EU in 2020

01/07/2021

Climate-related risk and financial stability

Data supplement

01/07/2021

Issues note on systemic vulnerabilities of and preliminary policy considerations to reform money market funds (MMFs)

01/06/2021

Lower for longer – macroprudential policy issues arising from the low interest rate environment

Annex I

Annex II

01/06/2021

ESRB Annual Report 2020

28/04/2021

Prevention and management of a large number of corporate insolvencies

Risk dashboard

31/03/2022

ESRB risk dashboard, March 2022 (Issue 39)

Annex I

Annex II

09/12/2021

ESRB risk dashboard, November 2021 (Issue 38)

Annex I

Annex II

24/09/2021

ESRB risk dashboard, September 2021 (Issue 37)

Annex I

Annex II

01/07/2021

ESRB risk dashboard, June 2021 (Issue 36)

Overview note

Annex I

Annex II

06/04/2021

ESRB risk dashboard, March 2021 (Issue 35)

Overview note

Annex I

Annex II

Stress testing

14/02/2022

Adverse scenario for the European Securities and Markets Authority's money market fund stress testing guidelines in 2021

07/06/2021

Adverse scenario for the European Securities and Markets Authority's 2021 EU-wide central counterparty stress test

Letter to Ms Anneli Tuominen

07/05/2021

Adverse scenario for the 2021 EU-wide insurance sector stress test coordinated by the European Insurance and Occupational Pensions Authority

Letter to Mr Peter Braumueller

Opinions

17/06/2021

Opinion of the European Systemic Risk Board of 17 June 2021 regarding Estonian notification of an extension of the period of application of a stricter national measure based on Article 458 of the CRR (ESRB/2021/5)

Report

25/05/2021

Opinion of the European Systemic Risk Board of 25 May 2021 regarding French notification of an extension of the period of application of a stricter national measure based on Article 458 of the CRR (ESRB/2021/4)

Report

ASC reports

18/01/2022

Will video kill the radio star? Digitalisation and the future of banking

01/12/2021

On the stance of macroprudential policy

Compliance reports

11/02/2022

Country-specific Recommendations of the European Systemic Risk Board of 27 June 2019, Part II – Summary Compliance Report

Annex III – Implementation standards for country-specific Recommendations

17/12/2021

Recommendation ESRB/2015/2 – Summary Compliance Report

19/11/2021

Recommendation ESRB/2020/6 – Summary Compliance Report (Recommendations A, B(2), B(3), B(4) and C)

13/10/2021

Recommendation ESRB/2017/6 – Compliance Report

13/10/2021

Recommendation ESRB/2020/4 – Compliance Report

08/10/2021

Recommendation ESRB/2019/18 – Summary Compliance Report (Recommendation A)

03/09/2021

Country-specific Recommendations of the European Systemic Risk Board of 27 June 2019 – Summary Compliance Report

22/07/2021

Recommendation ESRB/2020/8 – Compliance Report (Recommendation B)

30/06/2021

Recommendation ESRB/2016/14 – Summary Compliance Report

Recommendations

11/02/2022

Recommendation of the European Systemic Risk Board of 2 December 2021 on medium-term vulnerabilities in the residential real estate sector in Austria (ESRB/2021/11)

Cover letter

Recommendation of the European Systemic Risk Board of 2 December 2021 on medium-term vulnerabilities in the residential real estate sector in Germany (ESRB/2021/10)

Cover letter

Response from the Federal Ministry of Finance, Germany

Recommendation of the European Systemic Risk Board of 2 December 2021 on a pan-European systemic cyber incident coordination framework for relevant authorities (ESRB/2021/17)

Public statement by European Supervisory Authorities

25/01/2022

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

Warnings

11/02/2022

Warning of the European Systemic Risk Board of 2 December 2021 on medium-term vulnerabilities in the residential real estate sector of Slovakia (ESRB/2021/16)

Cover letter

Response from the Ministry of Finance of the Slovak Republic

Warning of the European Systemic Risk Board of 2 December 2021 on medium-term vulnerabilities in the residential real estate sector of Liechtenstein (ESRB/2021/14)

Cover letter

Response from the Ministry of General Government Affairs and Finance and the Financial Market Authority, Liechtenstein

Warning of the European Systemic Risk Board of 2 December 2021 on medium-term vulnerabilities in the residential real estate sector of Hungary (ESRB/2021/15)

Cover letter

Response from the State Secretary at the Ministry of Finance, Hungary

Warning of the European Systemic Risk Board of 2 December 2021 on medium-term vulnerabilities in the residential real estate sector of Croatia (ESRB/2021/13)

Cover letter

Response from the Ministry of Finance, Croatia

Warning of the European Systemic Risk Board of 2 December 2021 on medium-term vulnerabilities in the residential real estate sector of Bulgaria (ESRB/2021/12)

Cover letter

Response from the Ministry of Finance, Bulgaria

Response from the Bulgarian National Bank

Opinions

16/02/2022

Opinion of the European Systemic Risk Board of 16 February 2022 regarding the existing O-SII buffer pursuant to Article 131 and the Belgian notification of the setting of a systemic risk buffer rate pursuant to Article 133 of Directive 2013/36/EU of the European Parliament and of the Council on access to the activity of credit institutions and the prudential supervision of credit institutions (ESRB/2022/2)

Report

19/10/2021

Opinion of the European Systemic Risk Board of 19 October 2021 regarding Swedish notification of an extension of the period of application of a stricter national measure based on Article 458 of the CRR (ESRB/2021/8)

Report

Responses and letters

31/03/22

ESRB Secretariat's response to ESMA's consultation on APC measures for CCPs

31/03/22

ESRB response to the European Commission consultation on the review of the Mortgage Credit Directive

23/03/22

Letter to the European Parliament on the review of the AIFMD

23/03/22

Letter to the Council Working Party on the review of the AIFMD

23/03/22

ESRB response to the European Commission's targeted consultation on the review of the central clearing framework in the EU

02/02/22

Letter to Members of the European Parliament on the Solvency II review

02/02/22

Letter to the Council Working Party on the Solvency II review

20/01/22

ESRB response to ESMA's consultation on determining the degree of systemic importance of LCH Ltd and ICE Clear Europe or some of their clearing services

Abbreviations

Countries

BE	Belgium	**HU**	Hungary
BG	Bulgaria	**MT**	Malta
CZ	Czech Republic	**NL**	Netherlands
DK	Denmark	**AT**	Austria
DE	Germany	**PL**	Poland
EE	Estonia	**PT**	Portugal
IE	Ireland	**RO**	Romania
GR	Greece	**SI**	Slovenia
ES	Spain	**SK**	Slovakia
FR	France	**FI**	Finland
HR	Croatia	**SE**	Sweden
IT	Italy	**IS**	Iceland
CY	Cyprus	**LI**	Liechtenstein
LV	Latvia	**UK**	United Kingdom
LT	Lithuania	**NO**	Norway
LU	Luxembourg	**US**	United States

Other

ASC	Advisory Scientific Committee
ATC	Advisory Technical Committee
AIF	alternative investment fund
AIFMD	Alternative Investment Fund Managers Directive
BaFin	German Federal Financial Supervisory Authority (*Bundesanstalt für Finanzdienstleistungsaufsicht*)
BBM	borrower-based measure
CAPE	cyclically adjusted price-to-earnings ratio
CCP	central counterparty
CCyB	countercyclical capital buffer
CDS	credit default swap
CESEE	Central, eastern and south-eastern Europe

CRD	Capital Requirements Directive
CRE	commercial real estate
CRR	Capital Requirements Regulation
DeFi	decentralised finance
DORA	Digital Operational Resilience Act
DSTI	debt-service-to-income
DTI	debt-to-income
EBA	European Banking Authority
ECA	European Court of Auditors
ECB	European Central Bank
ECON	Committee on Economic and Monetary Affairs of the European Parliament
EEA	European Economic Area
EIOPA	European Insurance and Occupational Pensions Authority
ESAs	European Supervisory Authorities
ESG	environmental, social and governance
ESMA	European Securities and Markets Authority
ESRB	European Systemic Risk Board
EU	European Union
EU-SCICF	pan-European systemic cyber incident coordination framework
FTE	full-time equivalent
GDP	gross domestic product
G-SIFI	global systemically important financial institution
G-SII	global systemically important institution
IRB	internal ratings-based
LMT	liquidity management tool
LTV	loan-to-value
LVNAV	low-volatility net asset value
MEP	Member of the European Parliament
MMF	money market fund
MMFR	Money Market Fund Regulation
MREL	minimum requirement for own funds and eligible liabilities
NAV	net asset value
NFC	non-financial corporation
NGFS	Network for Greening the Financial System
NPL	non-performing loan
O-SII	other systemically important institution
PSA	pension scheme arrangement
RRE	residential real estate
SI	significant institution
SRB	Single Resolution Board

SREP	Supervisory Review and Evaluation Process
SSM	Single Supervisory Mechanism
STIR	short-term interest rate
SyRB	systemic risk buffer

Imprint

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For specific terminology please refer to the **ESRB glossary** (available in English only).

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