CNMV
Comisión Nacional del Mercado de Valores

Financial Stability Note

No. 21, January 2022

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The Financial Stability Note forms part of the tasks that the Spanish National Securities Market Commission (CNMV) carries out to monitor financial stability conditions in the areas that it supervises. In particular, the Note assesses the stress level of **domestic securities markets during the last quarter,** flags any changes in the level of the various financial risks and identifies the major sources of risk.

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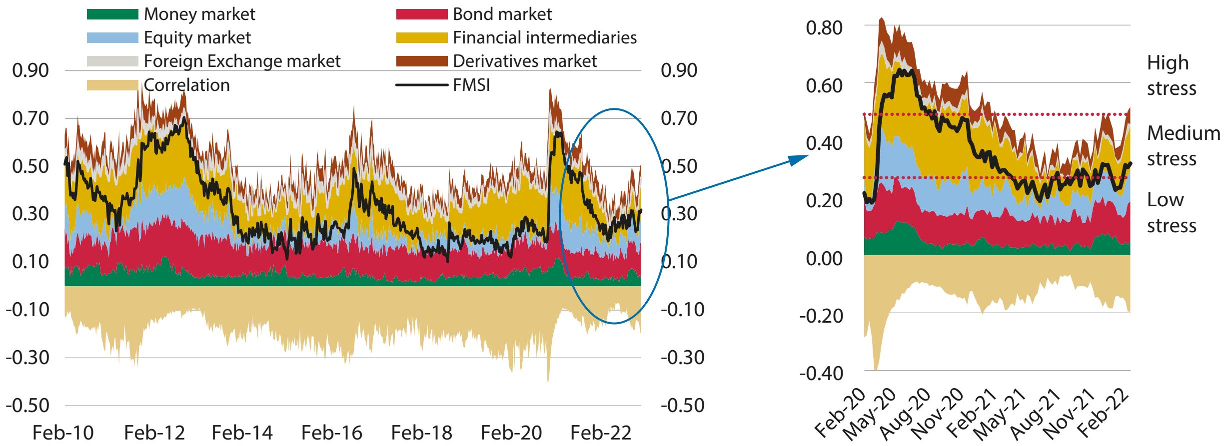
Summary

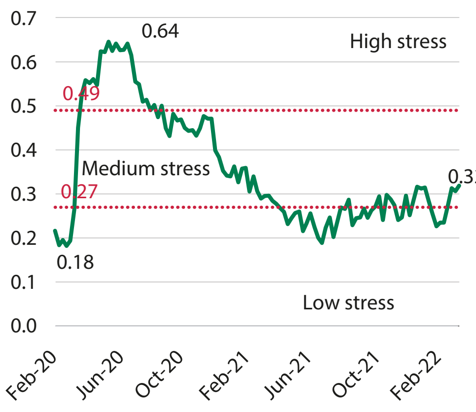
✓ Since the publication of the last financial stability note, the Spanish **financial market stress indicator** has continued to hover around the threshold that separates low risk from medium risk (0.27), currently being at a medium risk level. Most recently it has trended slightly upwards due to the intensification of two major sources of uncertainty: the conflict in Ukraine and the increase in inflation, bringing with it the expectation of a shift in the monetary policy adopted by the main central banks. These uncertainties have given rise to increases in the volatility indicators of various segments (equities, financial intermediaries, debt, etc.) which have pushed the general indicator upwards. In this context, the stress level of the system stood at 0.32 in mid-February[1] (0.23 at the end of 2021), with the fixed income market standing out as the most stressed subsector. The system's correlation, although still high, has shown a slight decline.

Spanish financial market stress indicator

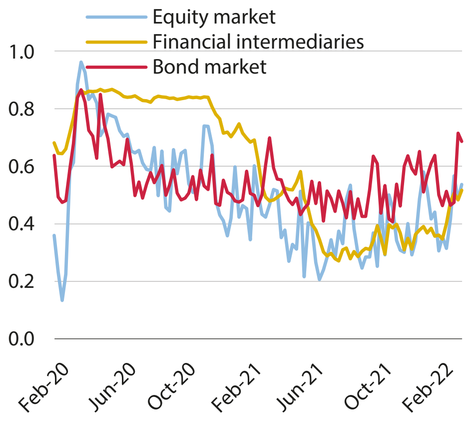
FIGURE 1



Total stress indicator



Indicators in the bonds, financial intermediaries and equities segment



Source: CNMV. For more detail on the recent movements in this indicator and its components, see the CNMV statistical series (Market stress indicators), available at: http://www.cnmv.es/Portal/Publicaciones/SeriesWeb/Inicio.aspx? codrama=1295. For further information on the methodology of this index, see Cambón, M.I. and Estévez, L. (2016). "A Spanish Financial Market Stress Index (FMSI)". *Spanish Review of Financial Economics,* Vol. 14, No. 1, pp. 23-41 or as CNMV Working Paper No. 60 available at: http://www.cnmv.es/DocPortal/Publicaciones/MONOGRAFIAS/Monografia_60_en.pdf.

✓ **Spanish financial markets have been affected by the intensification of the aforementioned sources of uncertainty**, although somewhat less than other markets, especially in the field of equities. Thus, the Ibex 35 lost 1.6% until mid-February, less than most

[1] The closing date of this note is 31 January, except for the stress indicator (which goes to 11 February) and certain other specific market data.

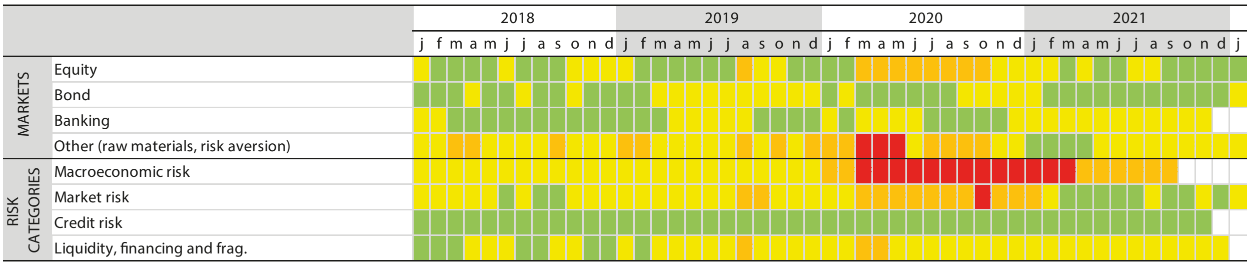
indices (between 3.4% for the Mib 30 and 11.9% for the Nasdaq). This may be because, in addition to the valuations of Spanish companies probably being less susceptible to adjustment, there is a greater weight in the Spanish index of companies in sectors driven by such factors as the lifting of COVID-related restrictions in Europe (companies linked to transport and tourism), improved prospects of Latin American economies (the largest companies) and the expectation of higher interest rates (banks). Debt markets were stressed in a similar way to other European markets, with increases in the yields of assets with longer maturities and in risk premiums. Even so, risk premiums remained at levels far below the peaks observed in the most recent crisis periods.

✓ The **most significant sources of risk to financial stability identified** are related, as indicated at the beginning of this note, to the intensification of the conflict over Ukraine and to the rise in inflation, heralding a shift in monetary policy which is more imminent in the United States and already under way in other countries such as the United Kingdom. These sources of uncertainty, which have to some extent reduced the leading role of COVID trends as a risk factor, have already had important consequences for the evolution of the financial markets. Their further intensification could generate destabilising effects and negative spirals of contagion, with price adjustments and the transfer of investments out of risky asset classes into others considered as safe havens.

✓ In this context, the most salient **financial risks** are market risk and liquidity risk, together with the risk of contagion, which becomes more relevant during periods of increased uncertainty. In equity markets, market risk has partially materialised, with notable corrections in stock prices that had seen the biggest recent increases. In Europe, and particularly in Spain, this risk is less significant, since valuations are much tighter, but it may be important in fixed income markets, especially in a scenario of a more intense and more imminent rise in interest rates. This increase has a negative impact on holders of debt assets, with the possibility of triggering sales in the markets, and on agents that require financing, due to its higher cost. Liquidity risk is also noteworthy in this context, especially in assets of relatively worse credit quality.

Heat map: summary by markets and risk categories[1]

FIGURE 2



Source: CNMV. See article Cambón, M.I. (2015). "Identification of vulnerabilities in the Spanish financial system: an application of heat maps". *CNMV Bulletin*, Quarter I, pp. 109-121.

1 Data until 31 January.

Sources of risk

Macroeconomic environment

- According to the advance provided by the National Institute of Statistics (INE), **Spain's GDP** grew by 2.0% in the last quarter of 2021 compared to the previous one and by 5.2% compared to the same quarter of the previous year. Average growth for 2021 came to 5.0% (-10.8% in 2020). The growth of activity in Spain is explained by the favourable evolution of both domestic demand,[2] with a contribution to annual growth of 3.6 percentage points (pp), and external demand, which contributed 1.7 pp. Regarding the last three months of the year, it is worth noting a significant slowdown compared to the advance of the previous quarter, which is mainly explained by the fall in household consumption in a context marked by the rapid advance of the *omicron* strain of COVID-19. Despite this slowdown, the Spanish economy showed more robust growth than that of the euro area as a whole in this last quarter of the year, though not for the whole of 2021, in which the euro area grew by 5.2% (see Figure 21).

  The advance figure for Spain's growth in 2021 (5.0%) is below the forecasts made by the Government (6.5%), but higher than the latest forecasts of the Bank of Spain and the Organisation for Economic Cooperation and Development (OECD) (4.5%) and in line with those of the International Monetary Fund (IMF). These institutions' forecasts for 2022, which have generally been revised downwards,[3] put growth in Spain's GDP at between 5.4% and 5.8%.

- The quarterly National Accounts data for Spain showed a clear improvement in the **labour market** throughout 2021, with job creation of 6.7%[4] in the year. The results of the Active Population Survey (EPA) also confirm this expansion of employment, with 20.18 million persons in employment at the end of the year. According to this survey, 840,700 jobs were created, which represents a growth of 4.4%. This increase was reflected both in the economic activity rate, which rose by almost half a percentage point (to 58.7%)[5] and in the number of unemployed, which fell by 625,900,[6] bringing the unemployment rate to 13.3% (14.6% at the end of September and 16.1% at the end of 2020). These figures do not include those affected by furlough schemes (ERTE),[7] who numbered 122,672 in December 2021.[8] In January this figure fell to 116,821, despite the slight increase in ERTE furlough schemes related to COVID-19 (+2,495).

  As for Social Security membership, data for January showed a monthly increase of 71,948 (seasonally adjusted), to 19.91 million,[9] continuing the positive trend of 2021, which ended with an increase of 4.1% in the number of contributors. The Bank of Spain's forecasts for the end of 2022 indicate that the unemployment rate could stand at 14.2%, 0.1 pp less than its September forecast.

- **The inflation rate** ended last year at 6.5% (-0.5% in 2020), reaching its highest level since 1992. The groups with the greatest influence on the increase in the annual rate

2 At 9.6% for the year, the growth of investment (gross capital formation) stands out, followed by household consumption, which grew by 2.4%.
3 The main factors leading to the downward correction of growth forecasts for Spain (for example, 0.4 pp in the case of the Bank of Spain and 0.6 pp in that of the IMF) are international in scope, related to disruptions in supply chains, the deterioration of the epidemiological situation and the persistence of relatively high levels of inflation.
4 FTE jobs.
5 In the fourth quarter, however, it fell by almost half a percentage point, having exceeded 59.1% at the end of the third quarter.
6 In the last three months of the year alone, the decrease was 312,900 persons, which represents a quarterly variation of -9.2%.
7 In accordance with Eurostat and International Labour Organisation (ILO) methodology these workers are considered employed.
8 These data include ERTEs that are related to COVID-19 (102,548) and those that are not (20,124).
9 This figure is almost 435,000 more than the number of people in employment in February 2020, the month before the start of the COVID-19 crisis.

were, by far, housing,[10] caused by the rise in electricity prices, and transport, reflecting higher fuel prices. Core inflation also increased, although less intensely (from 0.1% to 2.1%), so despite the fact that the total increase in prices is mainly explained by the energy component, significant increases are also seen in the rest of the goods and services in the consumer basket. In the comparison with the euro area as a whole, the data reflect an increase to 1.6 pp in the differential in Spain's favour (0.6 pp in November). In the early stages of this year, the leading indicator for inflation has shown a decrease of half a percentage point in the year-on-year rate, to 6.0%. This was largely due to the fall in the price of electricity, compared with the increase recorded in January 2021. The core inflation rate continued to rise during the first month of the year, reaching 2.4% (up by 0.3 pp).

- The information available on **public sector finances** shows a notable contraction in the public deficit compared with the previous year, although the figures still show a certain impact deriving from the COVID-19 crisis and the measures approved to combat its effects. The consolidated deficit of the public administrations[11] stood at 4.6% of GDP at the end of November, well below the figure of 8.0% seen in the same period of 2020, with improvements in all administrations (central government, autonomous regions and social security funds).[12] The level of public debt fell in the third quarter of the year to 121.8% of GDP (122.8% in the second quarter and 114.1% a year earlier).

  The forecasts of the Bank of Spain place the public deficit for 2021 as a whole at 7.5% of GDP, while according to IMF calculations it would amount to 8.6%.[13] For their part, the main national and international organisations estimate levels of public debt at slightly above 120% of GDP, with a gradual reduction (also of the deficit) in the coming years. Thus, for this year a deficit of close to 5% of GDP is expected.[14]

- **The data of the Financial Accounts** corresponding to the third quarter of 2021 show a gradual return to the patterns that existed before the pandemic. Thus we see that the savings rate, which had gradually increased from 9.6% of disposable income in March 2020 to a high of 16.3% in the first quarter of 2021 (accumulated data of four quarters), fell during the second and third quarters of last year, reaching 12.7% in September. This figure was still notably below that of the euro area as a whole, which was 18.5% in the same period (see Figure 29). This reduction in the level of savings of Spanish households was reflected in the acquisition of financial assets, which, although still above that of 2019, fell to 5.8% of GDP at the end of the third quarter (in net annual terms), 1.7 pp less than the closing value of 2020 and 0.5 pp below the June figure (see Figure 27). The evolution of the various asset classes that make up this investment followed patterns similar to those of previous years, with a significant disinvestment in time deposits and fixed-income securities, 3.1% of GDP, and a substantial portion of savings being invested in means of payment,[15] with inflows reaching 6.9% of GDP. However, looking only at the results of the third quarter, investment in cash and deposits was less than in previous

10 This group mainly comprises rentals and associated services such as electricity, gas, etc.

11 Excluding local authorities and aid to financial institutions.

12 In the case of the central government, the deficit decreased by 1 pp, to 5.4% of GDP, deriving from a greater increase in non-financial income (18.4%) in relation to expenditure (9.6%). The autonomous regions, for their part, increased their surplus to 0.7% of GDP (0.1% between January and November 2020), while the social security funds experienced a surplus of just over €1 billion, compared with the deficit of more than €18 billion as a result, especially, of the growth in contributions (5.1%).

13 Although the prediction of the Bank of Spain corresponds to the latest report published, in the case of the IMF this figure is that published in October, since the shorter document published at the end of January presents only projections for GDP growth.

14 The Bank of Spain's forecast is 4.8% (after an upward correction of 0.5 pp), while the Government's is 5% and Uncas' is 5.4%.

15 Cash and demand deposits.

quarters (1.6% of GDP) and greatly exceeded by subscriptions to investment funds (2.5% of GDP).

An analysis of the data available to the CNMV on **flows of investment funds** shows that the relative polarisation of investors that began in 2019 continued in 2021. With data up to the third quarter of the year, the styles most favoured by these inflows were, on the one hand, some of those considered relatively risky, such as global funds, and, on the other, some of the more conservative, such as fixed income funds. Specifically, global funds saw by far the highest net subscriptions, both in the third quarter and in the first three quarters cumulatively, with figures of almost €5 billion and €25 billion respectively.[16] For fixed income funds, inflows of funds surpassed €2.6 billion in the third quarter and €5.2 billion in the first nine months of the year. In the case of foreign collective investment schemes (CISs) marketed in Spain, a notable, indeed even greater, increase was also observed in the first three quarters of 2021. Thus, the total investment volume exceeded €260 billion at the end of September, an increase of more than 30% since December 2020 and representing practically 43% of total CISs marketed in Spain.

Interest rate context: withdrawal of monetary stimulus measures

- Although the **European Central Bank (ECB)** maintained its ultra-expansive monetary policy during 2021 to support the economic recovery of the euro area, and its president, Christine Lagarde, reiterated on numerous occasions that it expects the high rates of inflation to prove transitory, the markets see the uptick in prices as more lasting[17] and began some time ago to factor in the likelihood of a premature tightening of this policy in order to fight inflation.[18] In this context and after a month of high uncertainty, a certain change of tone came from the ECB at the beginning of February. After the meeting of the Governing Council on 3 February, the President of the ECB herself indicated that a fall in inflation was expected over the course of the year, but also that it would remain relatively high for longer than previously expected. She also indicated that the institution stood ready to adjust all its instruments as appropriate to ensure that inflation stabilises towards the 2% target in the medium term. She also confirmed that the pandemic emergency purchase programme (PEPP) would end at the end of March. This will reduce the size of the ECB's debt purchases and push up asset rates both in both the primary and secondary markets. The markets' interpretation of the information offered by the ECB and its president was that the first rate hike could take place before the end of 2022.[19]

  Other central banks are further ahead in the shift of monetary policy. Such is the case of the Bank of England, which at the beginning of February raised its rates by 25 basis points (bp), to 0.5% following an initial increase of 15 bp in mid-December, and the US Federal Reserve, whose president indicated at the end of January that it might make its first rate hike in March to fight inflation (which stood at 7.5% in January, with core inflation at 6%, both rates marking new highs since 1982). In addition, he confirmed that the Fed would continue to reduce the monthly pace of its net asset purchases, bringing them to an end in March. The Fed had indicated that three rate hikes could take place over the course of the year depending on how inflation evolved.

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16 It is important to mention that over €7 billion of this figure corresponded to existing investment funds that had previously belonged to other categories.

17 The markets consider that inflation could be to some extent structural and more persistent than expected. Among other factors pointed to are high energy prices due to the high costs of the energy transition model, plus the impact of the Ukraine crisis on energy prices, the increased costs of raw materials, supply chain problems and persistent imbalances between supply and demand.

18 In the euro area, inflation has reached 5.1%, the highest rate yet in the euro era, due to the sharp increase in energy prices and problems in supply chains.

19 The markets have factored in a first rate hike before the end of the year, with some forecasts even placing it in mid-year.

In this context, **longer-term interest rates** showed an upward trend in the last quarter of last year, which extended into January and intensified in the first sessions of February. These increases led to the 10-year Spanish debt yield closing 2021 at around 0.6% (compared with 0.06% at the start of the year), at 0.75% at the end of January and at 1.3% in mid-February, its highest level since the first half of 2019.[20]

- These events reaffirm the **risk identification** set forth in previous notes, although the risk of rising interest rates gains relevance now that prices on the debt markets are factoring in expectations of tightening monetary policy, while at the same time strategies are being readjusted to protect the value of money against the threat of inflation. The foreseeable increases in interest rates may cause losses due to the valuation of fixed-income asset portfolios, which would be more intense in those with longer maturities or with a worse credit rating (among them, fixed-income and high-yield debt funds). Added to this is the loss of value due to inflation of liquidity positions and risk-free assets, which increases the incentives for investors to acquire assets with higher expected returns[21] and therefore with a significant increase in the associated risk levels. These types of assets generally have high levels of volatility (equities, emerging market or crypto-assets) and credit risk (they have worse credit ratings – subordinated and high-yield debt), and are less liquid (subordinated and high-yield debt, or private equity or real estate funds). On the other hand, the prospect of tighter monetary policy improves the expectations of the financial sector, since it will mean an improvement in interest margins and profitability, although in the medium term it may bring to light some vulnerabilities associated with the increase in financing costs of companies and households, which would be more pronounced in the case of those agents who are most indebted.

Sources of political uncertainty

- The conflict in Ukraine and the growing geopolitical tension between Russia and the NATO countries is currently one of the most important sources of risk, since it might not only continue to push up energy prices, but also affect the actual supply of energy and ultimately have adverse and yet imponderable consequences in terms of financial stability in the markets. These geopolitical tensions have existed for years, but have recently intensified significantly, generating uncertainty and involving many of the world powers.[22] Both the European Union and the United States have imposed economic sanctions on strategic Russian sectors such as energy, banking and defence, which could increase if there is military confrontation in Ukraine.[23] The materialisation of these problems has so far been reflected in the rising price of commodities, particularly oil and gas, and indirectly by contributing to the shift in monetary policy, in declines in international stock market prices. It may also continue to affect supplies of energy[24] and economic activity in general if tensions are prolonged or aggravated (loss of jobs, investments, stock

[20] With the exception of the transitory increases observed in March and April 2020 caused by the market turbulence in the wake of the outbreak of the pandemic.

[21] The data on net subscriptions to investment funds for the third quarter of the year, and the preliminary information available for the fourth quarter, continue to show investors' strong preference for asset categories with higher yield expectations.

[22] China and Russia have recently expressed their opposition to the expansion of NATO (with the possible entry of Ukraine into the organisation) and the United States has deployed troops to Eastern Europe.

[23] Among others, the imposition of restrictive measures on individuals and entities stands out, ranging from the freezing of assets in the European Union, including funds at their disposal, to the prohibition of entry into EU territory. In 2017 the European Council decided that sanctions would be assessed and extended, where appropriate, every six months (the last extension was last January).

[24] The president of the European Commission does not rule out imposing conditions on the operation of the Nord Stream 2 gas pipeline, which connects Russia with Germany, as one of the possible sanctions. This measure, in addition to affecting Russia, would also increase the shortage of energy in Europe, especially in Germany, which buys most of the Russian gas.

market falls, etc.). In this context, the possible outbreak of a military conflict could have serious consequences in human, political and economic terms, and be accompanied by turbulence in the financial system. Although these are difficult to assess with current information, the main contagion routes and risks to financial stability, in addition to the traditional effects already observed on equities, could be associated with periods of extreme volatility in gas prices and, possibly, electricity prices in the European Union, which could put pressure on the operations of the central counterparty clearing houses (CCPs). In the event of conflict, the risk of cyberattacks may also increase.

- The uncertainties arising from the trade relationship between the United States and China persist despite the fact that the first phase of the trade agreement between the two countries was signed almost two years ago. The negotiation of the following phases is still pending.[25] Recently, the World Trade Organisation (WTO) authorised China to impose tariffs on US products due to a years-old dispute over anti-dumping measures applied by the United States to several Chinese products.[26] Therefore, there are still doubts about the future development of the trade agreement between the two powers, taking into account not only this new WTO decision, but also the tensions over Taiwan and the United States' maintenance of the policy of sanctions and veto against Chinese companies.

- At the European level, there are still various tensions regarding the withdrawal of the United Kingdom from the European Union (Brexit). Despite the agreement reached in December 2020, which avoided the materialisation of one of the greatest sources of risk in recent years, its operation continues to be the subject of negotiation and has generated various disagreements between the parties. For example, Northern Ireland has recently suspended customs controls on agri-food products included in the EU-UK Trade and Cooperation Agreement.[27] Apart from this, in February the first round of negotiations of the year took place between the United Kingdom and the European Union regarding Gibraltar. In the financial area, following the restructuring of trading venues, as a result of which several UK entities opened venues and transferred part of their trading volumes to EU countries in 2021, market activity has been normal.

- Returning to Spain, the risks related to the health crisis have been reduced, with a downward trend in COVID-19 infections in recent weeks and continuing progress on vaccination, which suggests that the sixth virus wave is starting to decline. It is also worth highlighting the necessary capacity for effective implementation, without delay, of the funds allocated to Spain within the framework of the Next Generation EU programme.

Other sources of uncertainty

- The risks associated with the evolution of the coronavirus **pandemic** have decreased in recent months due to the gradual vaccination of the population and the decrease in the severity of the disease caused by the new variants of COVID-19. Consequently, over the course of February, several countries will lift most of the restrictions imposed to

[25] In recent months, the trade representatives of China and the United States have held talks on this issue in which they exchanged common concerns and agreed on the need to maintain bilateral contact.

[26] These tariffs, deriving from a 2012 dispute between the two powers, amount to US$645 million.

[27] The Brexit agreements require checks to be carried out on certain goods coming into Northern Ireland from the rest of the United Kingdom, in order for the open border with the Republic of Ireland, which is part of the European Union, to be maintained, but the United Kingdom wants to eliminate or greatly reduce these checks. This aspect was one of the most important controversies during the negotiations for the exit of the United Kingdom from the European Union.

stop contagion.[28] Even so, these risks continue to be very significant since: i) there are still countries with very low levels of vaccination, in which, therefore, the possibility of contagion is greater and ii) we cannot ruled out the appearance of new variants or strains of the virus leading to the re-imposition of restrictive measures on the population that could ultimately have repercussions on the markets.

- In an environment of increasingly rapid digitisation, **cybersecurity** has become one of the most important risks for all kinds of organisations. In particular, it is essential for financial entities to reduce their exposure to this risk in order not to generate risks to financial stability. In an ever more interconnected and interdependent system, the digital transformation in the financial sector has accelerated – also in part due to the pandemic – to the extent where most day-to-day operations are now carried out digitally and remotely. In this environment, the chance of suffering cyberattacks that could affect users, entities and even financial markets have increased significantly.[29] The conflict in Ukraine may also intensify the likelihood of occurrence of this risk. The materialisation of this operational risk could end up spreading to other sectors and giving rise to a general loss of confidence that would threaten financial stability. In this context, investment in cybersecurity is of vital importance, as is the promotion of coordination among the various sectors and authorities to try to reduce and prevent the possible systemic consequences of a cyber incident. Along these lines, the European Systemic Risk Board (ESRB) recently published a recommendation to establish a pan-European systemic cyber incident coordination framework (EU-SCICF).[30] From the regulatory point of view, the Digital Operational Resilience Act (DORA),[31] currently in the process of being approved, should be highlighted. Finally, in the Spanish sphere, it is worth highlighting the joint presentation by the CNMV, the Bank of Spain and the General Directorate of Insurance and Pension Funds (DGSFP) of the guides for carrying out advanced tests in cybersecurity under the adopted TIBER-ES framework.[32]

- The **risks related to climate change** continue to gain weight in agents' economic decisions. As has been pointed out in previous notes, the effects of climate change and the measures adopted to mitigate it and adapt to it are going to entail significant transformations both in the economy and in the financial markets, deriving both from the direct costs[33] and from the costs of transition[34] to a low-carbon economy. The size of the costs will largely depend on the preventive measures adopted, and will require large volumes of economic resources to finance them.[35] In this regard, the financial markets constitute a key mechanism for channelling the necessary resources, in a context of growing interest from investors in sustainable assets.

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28 These include the United Kingdom, Ireland, Denmark and Finland. However, the WHO in early February called for caution in lifting the restrictive measures, assuming that the maximum level of infections has not been reached in many countries.

29 According to a report by the World Economic Forum, in 2021 companies suffered an average of 270 cyberattacks each, 31% more than in 2020.

30 Its main objective would be the coordination between the various financial authorities of the European Union, other EU authorities and important actors at an international level.

31 Its objective is to establish a common framework of obligations, principles and requirements in the area of cybersecurity, so that all financial institutions are subject to a set of standard regulations to mitigate and manage the security risks affecting networks and information systems.

32 TIBER-ES is the Spanish adaptation of TIBER-EU, which is the EU framework for "threat intelligence-based ethical red-teaming" published by the ECB, and which aims to strengthen the cyber resilience of financial institutions.

33 The direct costs of climate change are clearly seen as a consequence of the events associated with it, with constant growth in these costs observed in recent years as a result of losses from disasters and extreme weather events (floods, fires, heat waves, droughts, etc.).

34 In the form of costs of mitigation and adaptation to a low-carbon economy (replacement of cars, energy systems, changes in production processes and supply sources, etc).

35 In public resources alone, the Investment Plan for a Sustainable Europe envisages the mobilisation of €1 trillion in sustainable investments over the next decade from the EU budget with the goal of achieving a carbon neutral economy by 2050.

In this context, the financial markets are preparing to accommodate a growing volume of assets that show commitment to sustainability criteria (ESG).[36] There is growing demand for these products by investors, which, in part, has contributed to asset managers and credit rating agencies gradually adapting their business models.[37] There is also a significant increase in the supply of these assets, with new issuers joining the green bond markets,[38] many of which issue on a recurring basis.

The most significant risks identified for financial stability are related, on the one hand, to the persistent difficulty of correctly assessing the risks associated with climate change[39] and, on the other hand, to the huge demand for these products relative to the existing supply. These elements can cause distortions in the price formation process, so future episodes of valuation adjustments cannot be ruled out. From the point of view of investor protection, one of the most important focuses of regulators and supervisors lies in avoiding "greenwashing",[40] which involves attributing sustainable characteristics to products or assets[41] that do not really have them.

36 Environmental, Social and Governance.

37 In the case of Spain, the CNMV had registered at the end of 2021 a total of 184 investment funds and four SICAVs (open-ended investment companies), with combined assets of €65.67 billion, that had shown their commitment in the ESG field by having their assets classified under Article 8 or 9 of the Sustainable Finance Disclosure Regulation, which came into force in March 2021.

38 Among them, the Kingdom of Spain and the European Union, which made the first issues of this type in the second half of 2021. The European Union is expected to become the world's largest green bond issuer, as its debt issues to finance the Next Generation EU programme are expected to reach €250 billion by the end of 2026.

39 The price formation mechanism for carbon emissions does not allow a correct assessment of the negative externalities associated with the climate.

40 'Greenwashing' (a neologism coined on the model of whitewashing (glossing over or covering up something such as a record of criminal behaviour, according to Merriam-Webster) refers to a set of mechanisms whereby companies try to make their products or activities appear sustainable when in fact they are not, with the aim of attracting the interest of potential investors or clients.

41 By way of example, it is worth pointing out that certain green bond issues are including clauses that prevent potential investor claims in the event that the issuer breaches its sustainability commitments.

Risk categories

Market risk: yellow

- The international equity markets began the last part of last year with new rises – which took them to new heights – favoured by positive trends in corporate earnings. However, this optimism started to fade after the announcement by the WHO at the end of November of the appearance in South Africa of the *omicron* variant and the emergence of doubts about the effectiveness of current vaccines to combat it. This fact, which gave rise to fears about the possible introduction of new restrictions on mobility, together with the intensification of problems in supply chains and fears that marked price rises would hasten the withdrawal of stimulus measures by central banks, ended up reversing the trend of stock market indices. Even so, most markets recovered from falls in the last sessions of the year due to the perception that the new variant of the virus was less harmful than expected and that the restrictions on mobility established in some countries and, therefore, the damage to economic activity would be less serious.

  Progress was interrupted at the beginning of this year due to the resurgence of tensions in Ukraine caused by the Russian escalation, with the consequences that have already been commented on, and to the persistence of high inflation rates both in the United States and in Europe, which, in the case of the United States gave rise to the announcement by the Federal Reserve of a first rate hike in the coming months.

- Most of the significant international indices, with the exception of Spain's and Japan's, showed notable advances in the fourth quarter,[42] which were more significant in the case of the US and French markets, with more uneven performances seen among the European indices. The evolution for the year as a whole was positive in all of them, although uneven, with notable advances in the US indices, the European Eurostoxx 50, the French Cac 40 and the Italian FTSE Mib and, to a lesser extent, in the rest of the indices, with the Japanese Nikkei 225 and the Spanish Ibex 35 at the bottom of the revaluations.

  All US indices made gains in 2021 as a whole, accumulating three consecutive years of increases, which were more intense in the case of the generalist[43] S&P 500 index, and which led all of them to close the year at record highs. The Dow Jones, with a greater weight of companies from the traditional economy, banks and industrials, gained 18.7% – favoured by the more cyclical nature of its components and the extension of the recovery of the US economy to all sectors –, while the more general S&P 500 index advanced by 26.9% thanks to the contribution of large technology companies,[44] whose Nasdaq index[45] advanced by 21.4%.[46] In the early part of 2022, to 14 February, all of them registered losses, ranging from 4.9% for the Dow Jones to 11.9% for the Nasdaq, as a result of fears of a rapid increase in interest rates, the consequences of which could be more

[42] The US indices accumulated increases between October and December that ranged between 7.4% for the Dow Jones and 10.6% for the S&P 500, while the European indices presented gains in the same period of between 4.1% for the German Dax 30 and 9.7% for the French Cac 40. At the same time, the European Eurostoxx 50, the Italian FTSE Mib and the UK's FTSE 100 advanced by 6.2%, 6.5% and 4.2% respectively, while the Spanish Ibex 35 and the Japanese Nikkei 225 fell by 0.9% and 2.2% respectively.

[43] The S&P 500 index is the most representative of the US economy and includes all sectors, from technology to manufacturing.

[44] The weight of technology companies in this index is growing and represents more than 28% of its capitalisation, the highest proportion in history. Of the top 10 companies by weighting in this index, eight are technology stocks, accounting for almost 26% of the total.

[45] The shares of the main US technology companies, known as FAANG (Meta Platforms – formerly Facebook –, Apple, Amazon, Netflix and Google), accumulated returns in the fourth quarter of -0.9%, 25.5%, 1.5%, -1.3% and 8.4% respectively, and of 23.1%, 33.8%, 2.4%, 11.4% and 65.3% respectively for the whole of 2021. In January 2022, the accumulated losses reached 6.9%, 1.6%, 10.3%, 24.1% and 6.6% respectively, all the shares having seen falls in price.

[46] The Nasdaq index appreciated in 2019 and 2020 by 35.2% and 43.6% respectively.

intense in the case of technological stocks, for which growth forecasts have been adjusted downwards. Thus, although some large technology stocks saw significant downward adjustments to their valuation at the beginning of the year, a significant proportion of the stocks[47] on the Nasdaq accumulated revaluations of close to 50% or even more in the last year.

The trend was similar in the case of the main European stock markets, although the intensity of the revaluation was more moderate, the increases of 9.7% and 6.5% of the French and Italian indices respectively standing out in the fourth quarter as did the decline of the Spanish Ibex 35. In the year as a whole, the increases in these same indices stood out, as well as that of the European Eurostoxx 50, all of them closing the year at values close to their all-time highs. In the first weeks of 2022, the falls extended to all indices,[48] except for the UK's FTSE 100, although their intensity was more moderate than in the case of the United States, ranging from 1.6% for the Ibex 35 to 5.4% for the Eurostoxx 50.

- In Spain, the Ibex 35 ended 2021 with a revaluation of 7.9%,[49] once again lagging behind the other major euro area indices, which in most cases doubled or even tripled, reflecting the lag in the recovery of the Spanish economy compared with the other large economies of the euro area. The fourth quarter ended with a decline of 0.9%, which placed the value of the index (around 8,700 points) at values similar to those of mid-2019. In the first weeks of 2022 (until 14 February), following the trend of other European markets, it also registered losses, but it presented the best performance among the European indices, benefiting from the recovery of tourism stocks and the services sector following the virtual disappearance of restrictions on mobility at the international level, as well as the improved prospects of Latin American economies, given the considerable exposure of the major listed companies to this region. A significant revaluation was also observed in the banking sector due to the expectation of a rise in interest rates.
- Most sectors evolved positively in 2021, albeit only modestly so, since some continued to feel the impact of the crisis on their levels of activity. The best performances came from the financial sector (20.7%), which was favoured by the lifting of restrictions on dividend distribution as well as the more general factors mentioned above, and from the real estate sector (13%), thanks to the dynamism of the property market and the recovery of asset prices. Companies in the raw materials, industry and construction sector (9.3%), as well as the technology and telecommunications sector (9%) also posted advances thanks to the increase in commodity prices in the former and the rally in the quoted price of the main telecommunications stock in the latter case. The only negative performances that stood out were those of the energy sector (-1.6%), which suffered from regulatory uncertainties,[50] and consumer services (-1.9%), which includes hospitality, tourism, leisure and airlines, whose activity continued to suffer from the effects of the pandemic. On the other hand, the first month and a half of this year ended with a decline in most sectors, which was more intense in industry, construction and consumer goods, although the revaluation of banks and airlines stood out.

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47 Among them, companies like Zoom, Peloton and Shopify, whose stocks benefited significantly from the outbreak of the pandemic.

48 The main European indices fell until 14 February, the most notable declines being the 5.4%, 4.9%, 4.6% and 4.2% of the Eurostoxx 50, the Dax 30, the Euronext 100 and the Cac 40 respectively. The best performance was that of the Ibex 35, which fell by only 1.6%. Outside the euro area, the UK FTSE 100 appreciated by 2%.

49 The Ibex 35 registered losses of 15.5% in 2020.

50 The government approved a royal decree-law that reduces the excess remuneration of nuclear, hydroelectric and renewable generation plants deriving from the rise in gas and CO_2 emission rights prices.

- The slight retreat of quoted prices between October and January, together with the expected continued growth in corporate earnings in the coming months, caused the price-earnings ratio (PER) of the Ibex 35 to fall from 14.3[51] in mid-October to 13.1[52] in January – its historical average is 13.6 – (see Figure 4). The PER fell gradually over the course of 2021 as corporate earnings recovered faster than stock prices. It can be expected to moderate in the coming months as growth in corporate earnings slows.
- International debt markets showed an upward trend in asset returns in the last part of 2021, which intensified in January and February of this year, as already mentioned. Thus, Spanish public debt interest rates closed the year with positive values from six years upwards, while rates on corporate debt[53] reached positive values for all terms of the curve. The public debt yields of most European economies[54] closed 2021 with increases in most of the terms of the curve, moving them away from the values close to their historical lows at which they had started the year. In the 10-year term, the increases were between 40 bp for Germany and 68 bp for Greece – on average they were around 50 bp –, and at the end of the year the yield on 10-year debt presented negative values only in Germany and the Netherlands. Until mid-February, the additional increases were between 45 and 132 bp, so that all long-term European sovereign debt assets obtained positive returns, a circumstance that had not arisen since the first half of 2019. Thus, the 10-year debt yields presented values close to 0.25% in Germany and around 0.50% in the Netherlands, Austria and Finland. In France, Belgium and Ireland for their part they were close to 0.75%, in Spain and Portugal around 1.25%, while in Italy they remained close to 2% and in Greece they exceeded 2.5%.
- Yields on corporate debt also increased in all sections of the curve, although the increases were mainly concentrated in the longer sections, which are more affected by the foreseeable reductions in the ECB's specific purchase programmes. Despite the fact that in this group of assets a notable dispersion of returns is usually observed,[55] their levels remain low, as they continue to be favoured by search-for-yield strategies.
- The foreseeable shift in monetary policy by the major central banks has appreciably increased the market risk of debt assets, especially in the case of lower rated high-yield and subordinated debt, since these assets do not have the direct support of the ECB's programmes and tend to be less liquid. Also, the financial structure of some companies could have been significantly weakened by the pandemic, so the premiums demanded on their debt will largely depend on how the economic recovery and their own businesses evolve. Accordingly, companies that find it difficult to recover their levels of activity and with relatively weak financial structures and high leverage could encounter problems in obtaining financing at a reasonable cost. A similar situation could occur in the most vulnerable economies, with higher levels of debt and significant fiscal imbalances, since a rise in interest rates would cause a significant increase in debt servicing requirements.

  Based on the foregoing, the potential effects of an increase in risk premiums on the prices and valuations of certain assets bear repeating. This is particularly relevant in the case

51 In the same period, the PER of the US S&P 500 stock index increased to 21.2 times, while that of the European Eurostoxx 50 increased to 15.2 times.

52 The PER ratio reached a value of 12.9 times in December, the lowest point in 2021.

53 Although part of the long-term European corporate bonds is included in the ECB's corporate debt purchase programmes and some of these securities presented negative returns throughout 2021, at the end of the year it was practically impossible to find corporate debt with negative yield in the secondary markets.

54 In the case of the United States, 10-year rates increased by 58 bp in 2021 to end the year at 1.5%. So far in 2022, until 14 February, they have increased again (by 50 bp), to 2.0%.

55 Corporate debt shows greater dispersion in yields depending on the type of asset (senior or subordinated debt), its credit rating and whether or not it is eligible for purchase by the ECB.

of some fund portfolios, especially fixed income funds, which are sometimes exposed to assets that are illiquid,[56] complex and have credit ratings that are below investment grade.

Credit risk: green

- Risk premiums in both the public and private sectors remained at low levels during 2021, with continued support from the ECB,[57] although there was a rebound in the former in the second half, which could be attributed to a certain slowing in the recovery of the Spanish economy. The Spanish risk premium – measured as the difference between the yield on the 10-year public debt in Spain and Germany – stood at 102 bp in mid-February, above both the 77 bp at which the year ended and the 63 bp registered at the end of 2020 (see Figure 11).
- The risk premiums of private sector entities closed 2021 below the levels at the beginning of the year, but they rebounded in the first weeks of this year due to the prospect of completion in March of the debt purchases made by the ECB in the framework of its pandemic emergency purchase programme (PEPP), which affects the debt issued both by banks[58] as well as non-financial corporations.[59] Thus, average bank CDS stood at 75 bp in mid-February, above the 64 bp at the start of the year, but below the 78 bp at the end of 2020. For its part, the average CDS of non-financial corporations stood at 63 bp in mid-February, 10 bp more than at the beginning of the year (and slightly above the closing levels of 2020).
- The information available on credit ratings of Spanish private sector issuers' debt for the fourth quarter of 2021 does not show any significant changes in credit quality. Most Spanish debt is still investment grade (89.4% of the total outstanding balance in December,[60] compared with 89.9% in September). The proportion of investment grade debt rated just one notch above high yield[61] was 11.2%, the same as in September and slightly less than that observed in previous quarters. By sector, a slight decrease can be seen in this group for non-financial corporations (although it still represents almost half of its debt, 49.0% in December compared with 50.6% in September) and in non-monetary financial institutions (1.0% in December compared with 1.2% in September). In monetary financial institutions, this proportion of debt represented 4.4% of the total at the end of the year, the same as in the previous quarter. On the other hand, private sector high-yield debt accounted for 10.6% of the total in circulation,[62] showing a slight increase relative to September (10.1%) and to 2020, when it represented an average of 9.2% of the total outstanding balance.

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[56] The abundant purchases of corporate debt and some types of debt issued by financial institutions in both the primary and secondary markets by the ECB could be affecting the liquidity of issues with smaller volumes or where ownership is concentrated in a limited number of investors.

[57] The ECB acquires Spanish public debt through its PSPP and PEPP asset purchase programmes, accumulating a balance of more than €485 billion, over 42% of the outstanding balance of long-term government debt.

[58] The ECB has several specific programmes for purchasing securities issued by financial institutions, such as covered bonds (CBPP3) and securitisations (ABSPP), which accumulated purchases to January of €295.06 billion and €26.77 billion respectively, of which nearly 40% and 68% respectively were acquired in the primary market. At the same date, the ECB had accumulated covered bonds for the amount of €6.07 billion acquired under the PEPP.

[59] The ECB has a specific programme for the purchase of corporate debt (CSPP), which has been extended to all issuers meeting the conditions of the programme (minimum rating of BBB-), and which at the end of January had accumulated purchases of €317.86 billion, of which nearly 23% acquired in the primary market. In addition, at the same date it had accumulated corporate bonds and commercial paper amounting to €40.30 billion and €3.86 billion respectively, acquired under the PEPP.

[60] Including Public Administration debt, 96.2% of the total outstanding Spanish debt in December was investment grade.

[61] BBB- for Fitch and S&P or Baa3 for Moody's.

[62] Including Public Administration debt, 3.8% of the total outstanding debt in December is high yield.

- Although the information available on credit ratings of Spanish issuers still does not reflect significant changes in their credit risk, the following circumstances must be taken into account: i) the small risk premiums of all euro area issuers, including Spanish ones, is largely due to the ECB's purchasing programmes, and this could change in the future as the ECB reduces or even ends these programmes; ii) issuers of high-yield debt, who, as has been mentioned, also see their risk premiums reduced indirectly as a result of search-for-yield strategies, may see these premiums increase with adjustments to the evaluation of their level of risk; iii) the ratings and risk premiums analysed correspond mostly to large or medium-sized companies that, compared with smaller companies, have either been less affected by the crisis or have greater financial capacity to cope with its effects.

  Also, support measures implemented by the authorities, such as public guarantees, moratoriums or direct aid, have so far prevented a significant increase in the financial problems of many companies, but it is possible that in some cases these problems will worsen in the near future as the validity periods of the measures expire. In this regard, we detect a growing credit risk in the coming months[63] that may force many companies to carry out financial restructuring processes,[64] especially smaller companies such as SMEs or those in sectors that have not yet managed to recover from the effects of the pandemic.

- Financing to the non-financial sectors of the economy[65] ended 2021 with a year-on-year growth rate of 2.1%, below the average rates observed in the first half of the year. This trend is explained by the slowdown in the growth of financing to non-financial companies, which was not offset by the advances in household financing in the second half of the year. Financing to non-financial companies, which grew at rates in excess of 6% in the first quarter of last year, slowed progressively to close the year at 3.1%. This trend had its origin in the decrease in credit growth, the annual variation of which went from 8.4% in January to 0.5% in December,[66] and despite the good performance of financing via debt securities, which ended up growing at rates above 11%. For its part, financing to households showed an increase of 0.8% in December, in line with the values registered in the second half of the year and far from the negative values observed in the first months of the year. The growth in financing to households was due both to the recovery in lending for home purchases, which showed positive year-on-year growth for the first time since 2010, and to the expansion of consumer credit, which went from negative rates of more than 3% at the beginning of the year to positive rates close to 5% at the end of the year.

Liquidity, financing and fragmentation risk: yellow

- Fixed income issues registered with the CNMV in the fourth quarter of 2021 reached €27.32 billion, half the figure for the same period of 2020. This sharp fall was due to the virtual disappearance of securitisation bond issues and the decline by almost half in simple bond issues, although the growth of covered and territorial bond issues stood out, to a lesser extent. In the year as a whole, issues registered amounted to €101.17 billion, 23.4% less than in 2020, an amount close to that existing in the years prior to the outbreak of the pandemic. The biggest downturns in the year as a whole, which were

[63] Resident private credit non-performing loans stood at 4.29% in November.

[64] A growing number of companies have requested financial support from the Solvency Support Fund for Strategic Companies, the objective of which is to provide temporary public support to strengthen the business solvency of non-financial companies affected by the pandemic.

[65] Source: Economic indicators of the Bank of Spain.

[66] Between May and November the interannual rate was negative.

essentially determined by performances in the last few months of the year, were those of simple bonds and securitisation bonds, while the recovery in the volume of covered bonds stood out. On the other hand, fixed-income issues by Spanish companies abroad grew by 35% in the year, reaching €121.83 billion,[67] the highest amount since 2010 and once again exceeding the amount of issues registered in Spain.[68] Preliminary data for January 2022 show volumes down on recent months but up year on year[69] and concentrated in the renewal of covered bond issues and in issues of commercial paper. In the equity markets there were no IPOs in Q4, but earlier in the year we had seen the IPO of Acciona Energía[70] as well as the IPOs of Grupo Ecoener and Línea Directa in the form of a public subscription offer (OPS) and a listing respectively. In addition, Ibercaja Banco was scheduled to go public in February 2022 through an IPO, but it was cancelled by the issuer in a context of high market volatility.

In the primary markets, we note the considerable growth in private fixed income issues by Spanish issuers that can be considered green, social or sustainable.[71] The amount of these issues came to €13.12 billion in 2021 (close to 10% of long-term debt issues), almost 50% more than in 2020.[72] Of this amount, 60% was issued by financial institutions and the rest by non-financial companies. Prominent among the latter were issues by companies in the energy and utilities, real estate and construction sectors. Regarding the type of issues, close to 80% of the volume issued corresponded to green bond issues, 15% to social bond issues and 6% to sustainable issues. Finally, it should be noted that the bulk of these issues, around 80%, are made in foreign markets.

- The financing capacity of the Spanish economy reached €1.8 billion in November,[73] which placed it below the €3.3 billion registered in the same period of 2020. This trend is basically explained by the deterioration in the balance of non-tourist goods and services; the balance related to tourism, on the other hand, saw significant improvement. The cumulative 12-month figure shows financing capacity of €19.7 billion, above the €14.4 billion of the same period of 2020 but still far below the €30 billion plus posted in 2019. On the other hand, capital inflows[74] reached €8.2 billion thanks to the contribution of investments that are not accounted for as portfolio investment or direct investment, registering a balance of €15 billion (concentrated in the Public Administrations sector), and offsetting the decline of €5.3 billion in portfolio investment. The net balance of the financial account in 12-month cumulative terms was €9.6 billion, far below the €85.9 billion reached in the same month of 2020.
- Household deposits grew by 4.6% year-on-year in December, while those of non-financial companies increased by 8.9%, reaching €958.9 billion and €322.7 billion respectively, their highest values in the historical series. Both households – whose deposits grew every month except August – and companies continued to accumulate liquidity in

67 Almost equally divided between long-term debt and commercial paper issues.

68 This represents a reversal of the trend observed in 2020, when issues registered with the CNMV exceeded those registered abroad.

69 Debt issues registered with the CNMV in the period amounted to €4.38 billion, 11.4% more than in January 2021, of which more than half concerned short-term commercial paper.

70 Acciona Energía was the first OPV in the Spanish market since the first quarter of 2018.

71 Green Bonds are any type of bond instrument where the proceeds are exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects and which are aligned with the four core components of the Green Bond Principles (GBP). Social bonds are intended for new or existing social projects and aligned with the four components of the Social Bonds Principles (SBP); while sustainable bonds are used exclusively for financing or refinancing a combination of green and social projects.

72 It is also worth noting the inclusion as issuer for the first time of the Spanish Treasury, which carried out its first issue of green bonds in September for an amount of €5 billion. The total volume of ESG issues by Spanish issuers (public and private) exceeded €23 billion in 2021, 68% more than in 2020. Of this amount, 43% was issued by Public Administrations.

73 According to Bank of Spain monthly advance balance of payments data.

74 The data reflect the financial account excluding the Bank of Spain.

deposits (between them, more than €68 billion in 2021). This increase could be explained by several factors. On the one hand, households may not find attractive investment alternatives with little risk, so disinvestments and maturities of products such as time deposits and fixed income are not reinvested in similar products but kept in demand deposits. On the other hand, some households continue to delay consumption and investment decisions in order to meet the liquidity needs and uncertainties that could arise in the near future, in a context in which households' purchasing power[75] and companies' costs are affected by high inflation and the sharp increases in prices of raw materials and energy.[76]

- Consolidated household and corporate debt reached 140.9% of GDP in the first quarter,[77] totalling €1.66 trillion, 1.4 pp above the debt level registered in the same period of 2020. Household debt accounted for 59.8% of GDP, while corporate debt stood at 81.1%. The financial wealth of households and non-financial companies stood at €2.46 trillion (209.4% of GDP), 5.8% more than one year earlier. In net terms, financial wealth stood at €1.7 trillion (144.3% of GDP), 7.4 pp above the value for the same period of 2020.

- Average daily trading on the continuous market recovered – as usual – in the fourth quarter of 2021, reaching €1.67 billion, driven by increased volatility. This level is above the average for the entire year[78] (€1.45 billion) and represents 3.6% more on an inter-annual basis. Preliminary data for January of this year indicate that daily trading once again fell, to €1.51 billion, 1.6% lower than in the previous year and the lowest January volume in the last ten years.

  Fragmentation of trading in Spanish shares, measured as the percentage of total trading that takes place in markets other than the market of origin, reached an all-time high in the first quarter of 2021,[79] but moderated in the final stretch of the year. In the last quarter of last year, 44.5% of the trading of these securities subject to non-discretionary market rules was carried out in trading venues other than the market of origin.[80] For the year as a whole, this proportion was 46.7%, just 0.7 pp more than in 2020, so it seems that the trend towards issuing offshore could have peaked in 2021. On the other hand, the trading of Spanish shares carried out through systematic internalisers in 2021 as a whole came to less than 7% of total trading,[81] less than half the proportion that had been observed with some stability since 2019. If the trend consolidates, it would represent a significant advance in fulfilling one of the objectives of the MiFID II regulations, which was to shift part of the trading that currently takes place without being subject to non-discretionary market rules to trading centres that are subject to such rules.

- The liquidity indicator of the Ibex 35 (measured through the size of the bid-ask spread) remained at satisfactory levels, but tended to deteriorate slightly in the second half of the year in a context of slightly increased volatility and low trading volumes. In the case of the sovereign bond, although its spread remained at very low levels throughout the year thanks to ECB purchases, a certain increase was observed from November, which is explained by the greater volatility of the bond yield. Despite this increase, the spread

75 See data on the situation of households described under the heading "Macroeconomic environment".
76 See data on the situation of households described under the heading "Macroeconomic environment".
77 Source: Financial Accounts of the Spanish Economy published by the Bank of Spain.
78 The average daily trading on the continuous market in 2021 was 12% lower than that registered in 2020.
79 Trading in other trading venues and competing markets of BME represented 48.4% of total trading subject to non-discretionary market rules in the first quarter of 2021, an all-time high.
80 Preliminary data for January show that BME's share deteriorated once again to 48.5%, its lowest ever.
81 Total trading being defined as the sum of trading subject to non-discretionary market rules and that carried out through systematic internalisers.

remains at very low values in absolute terms (less than 1 bp) and in relative terms it shows a slight decrease as a result of the uptick in yield (see Figure 15).

- Interest rate spreads between loans to Spanish companies and loans to companies in the euro area as a whole decreased both for loans amounting to less than €1 million and for those of higher amounts. In the first case, they fell to a negative spread of 10 bp from negative 6 bp in September, and in the second they fell to a negative spread of 8 bp (6 bp positive in September). In both cases, minimum values of the last year were reached. The Bank Lending Survey for the fourth quarter of the year shows that the criteria for granting loans remained almost unchanged in the euro area in most segments, with a slight tightening being observed in the case of Spain. As for the conditions applied to the loans granted, there were no significant changes in either area, the only thing worth mentioning being a certain relaxation of the conditions applied in Spain to home purchase loans to households. Loan requests increased moderately in both areas in almost all segments, favoured by the context of economic recovery.

Risk of contagion: orange

- The correlation between the daily yields of the different types of Spanish assets continued the upward trend of the past few months, with some fluctuations, although it remains below the highs seen in March 2020 (when the median of these correlations hit 0.75). The value of this indicator, which had already increased from 0.19 in mid-July to 0.26 in October, ended January 2022 at 0.37, a figure close to the average values for the whole of 2020 (0.42). These increases were observed mainly from December and, although some decreases were registered in January of this year, the upward trend continued during the last weeks of the month. The minimum and maximum values of these correlations have drawn slightly further apart since October: the minimums went from values around -0.35 to -0.43 on some days in January, and the maximums went from 0.74 in October to 0.85 in January. The correlation between the different sectors also registered increases, especially from November on, with those among equities and between equities as a whole and fixed income assets standing out. In general, correlations between sovereign debt and private fixed income and equities followed a downward path, with increases in the first month of the year. It should be remembered that the possibilities of contagion increase with higher levels of correlation and that, in addition, high correlations make it difficult to diversify portfolios.

- Movements in EU public debt assets led to some changes in correlations relative to the values seen in October. Thus, for example, the correlation between the return on Spanish sovereign bonds and those of the core countries, which had been stable at around 0.97 since mid-February 2021 (see Figure 32), fell in December to values close to 0.88 (it is worth noting a somewhat more intense decrease in the correlation with the German bond). Later, in January, this correlation reversed this downward trend and increased, ending up showing values around 0.98. The correlation between the yield on Spanish sovereign bonds and on those of the peripheral countries was less stable than in the case of the core countries. At the end of October this indicator was stable at around 0.97, but in mid-November it began to decline, more significantly than those mentioned above, to figures close to 0.59 in December. This fall was driven by the decrease in the correlation between the yields on Spanish and Greek bonds, which became negative at the end of December, and, to a lesser extent, in that between Spanish and Italian bonds. From the beginning of the year, the correlations increased again and stood at around 0.95 at the end of January.

Market risk: yellow

Figure 3: Stock market prices

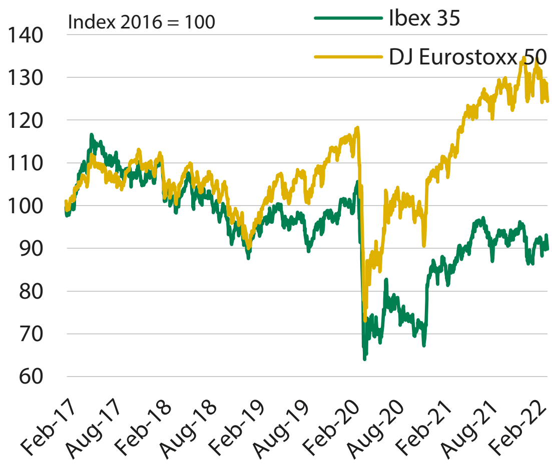
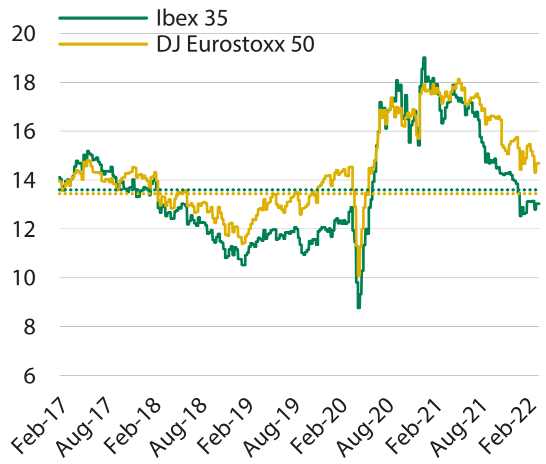


Figure 4: Price-earnings ratio (PER)



The dashed lines correspond to the average P/E ratio calculated since 2000.

Figure 5: Short-term interest rates (3 months)

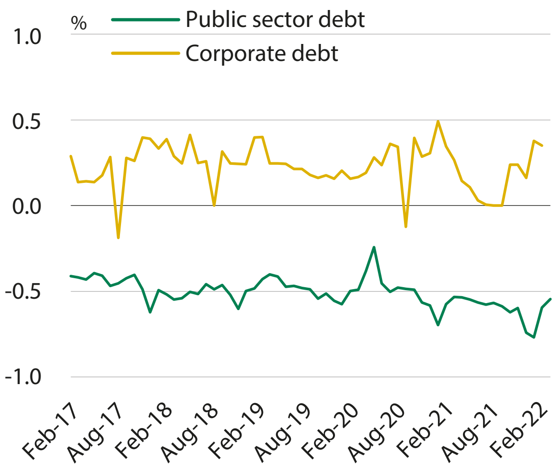


Figure 6: Long-term interest rates (10 years)

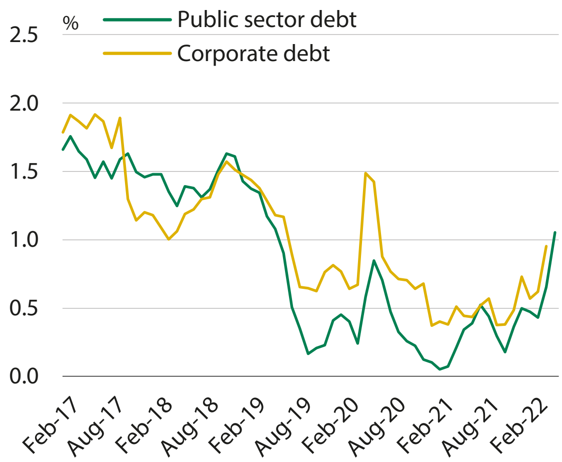


Figure 7: Oil price

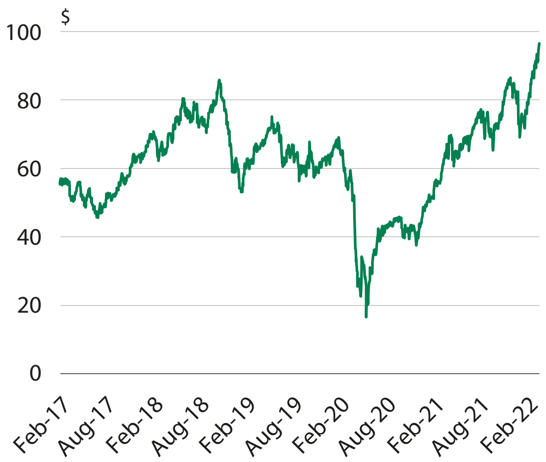
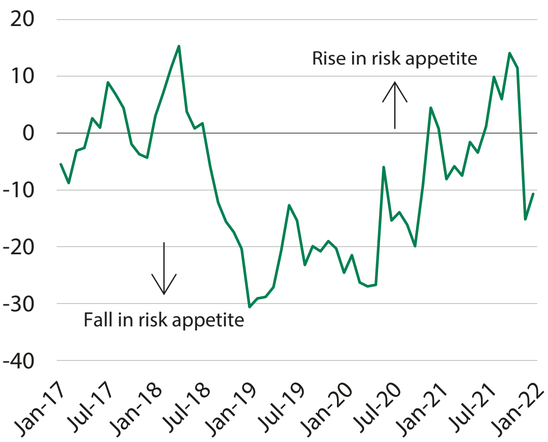


Figure 8: Risk appetite (State Street)



Credit risk: green

Figure 9: Financing of the non-financial sector

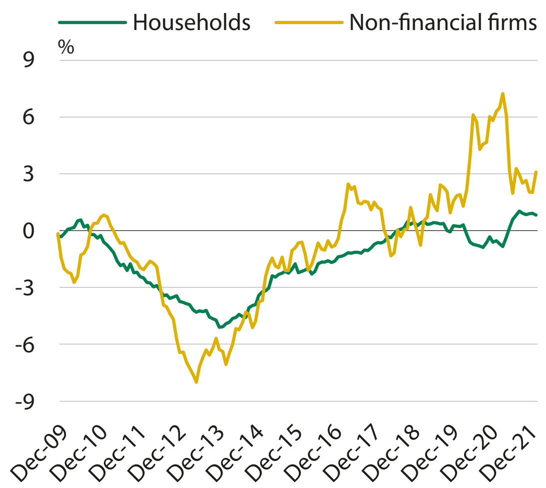


Figure 10: NPL (delinquency) ratio and unemployment rate

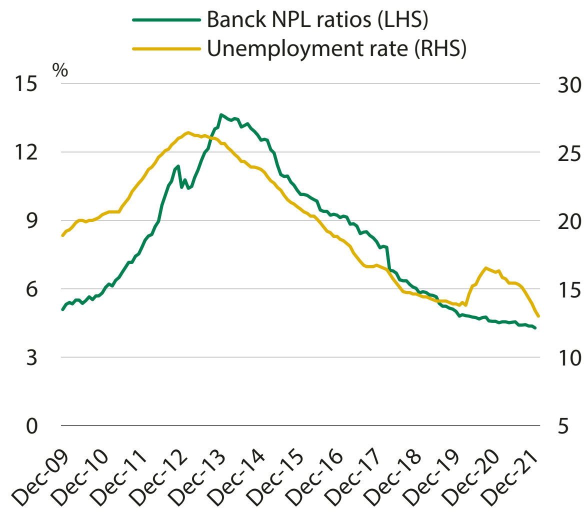


Figure 11: 10-year government debt risk premium (rate differential with Germany)

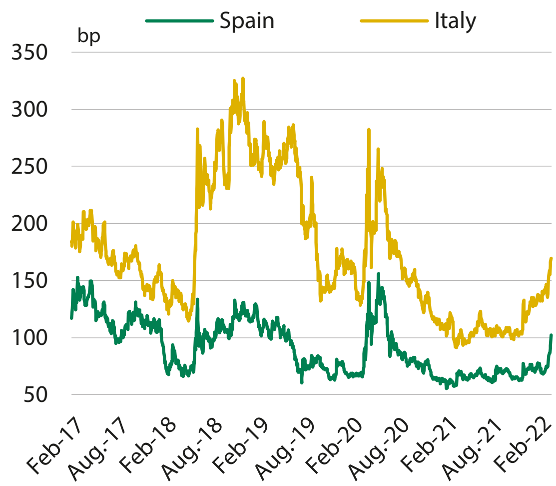


Figure 12: Private debt risk premium (5-year CDS)

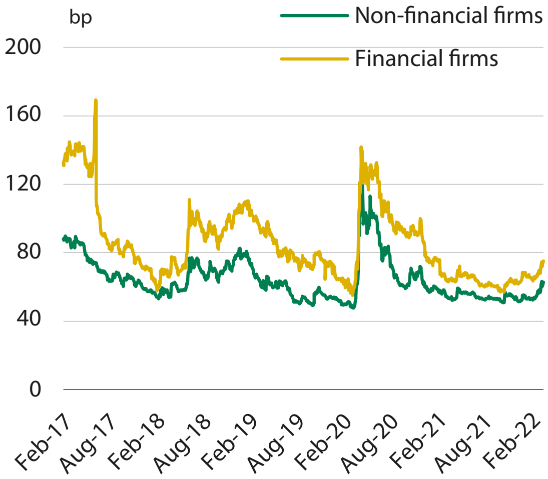


Figure 13: Housing prices (year-on-year change)

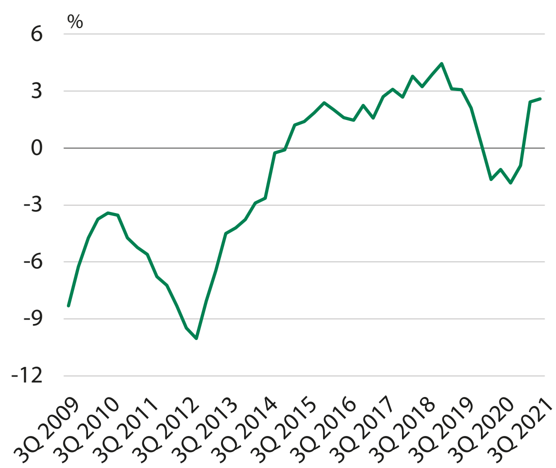
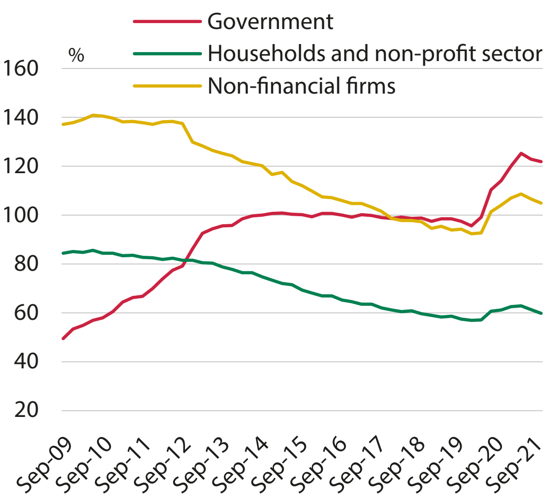
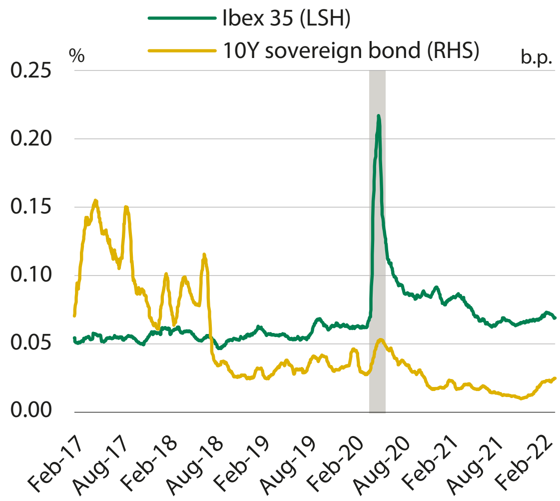


Figure 14: Indebtedness (% GDP)



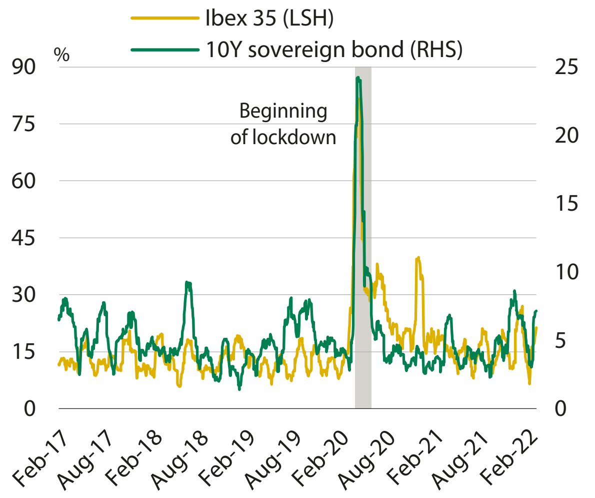
Liquidity, financing and fragmentation risk: yellow

Figure 15: Liquidity (bid-ask spread)



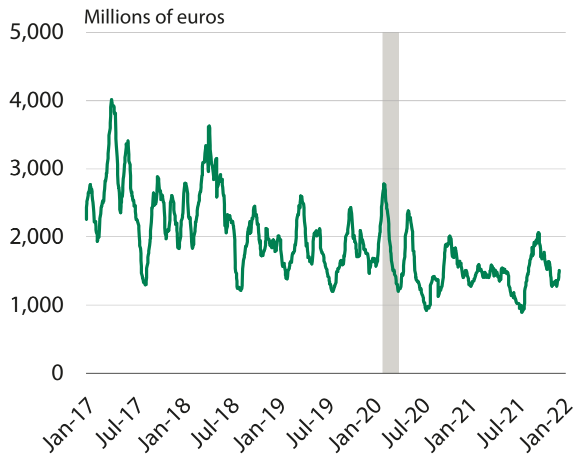
The shaded area corresponds to periods when short selling was banned.

Figure 16: Volatility (1-month moving average)



The shaded area corresponds to periods when short selling was banned.

Figure 17: SIBE trading (1-month moving average)



The shaded area corresponds to periods when short selling was banned.

Figure 18: Interbank spread (LIBOR-OIS)

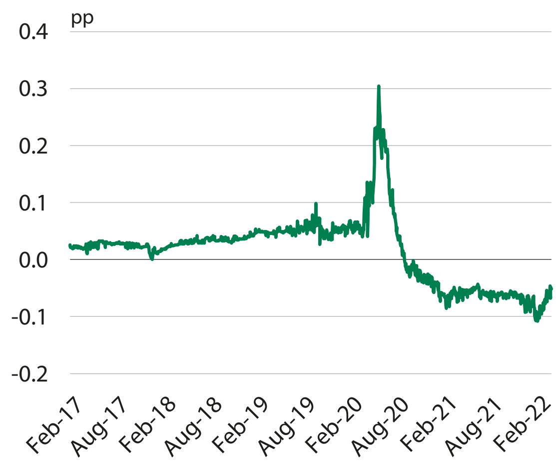


Figure 19: Spread (Spain-EMU) on corporate lending rates

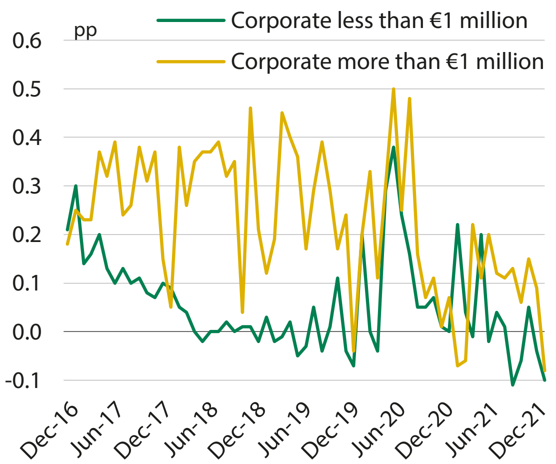
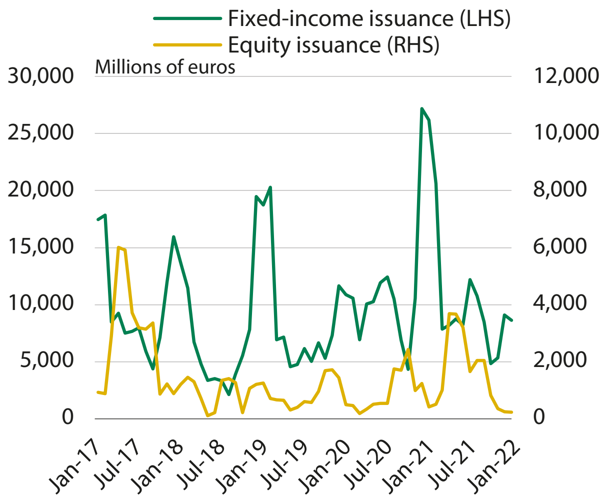


Figure 20: Issues (3-month moving average)



Macroeconomic risk: orange

Figure 21: GDP (year-on-year change)

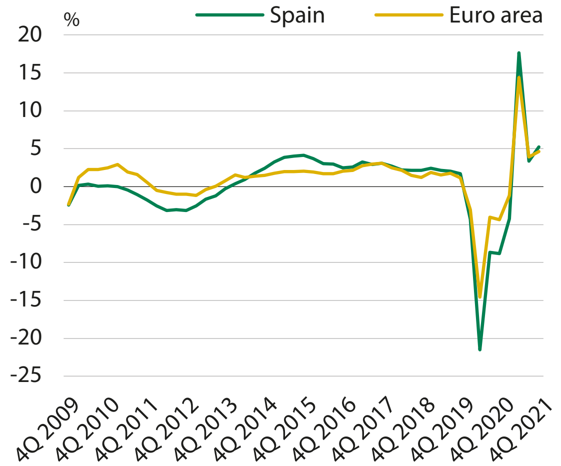


Figure 22: HCPI and core CPI (year-on-year change)

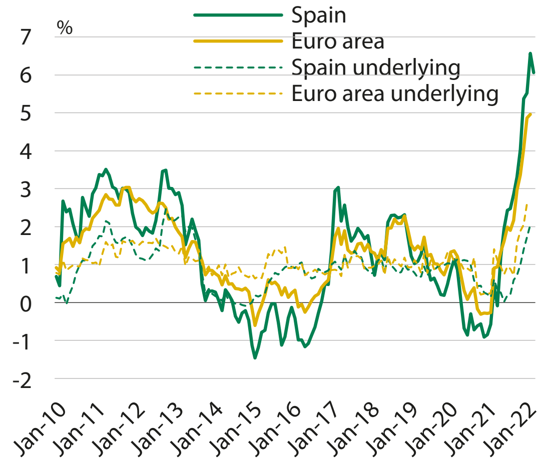


Figure 23: Employment (year-on-year change)

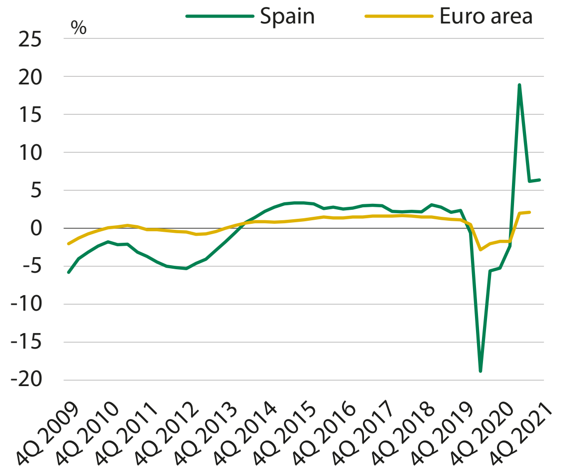
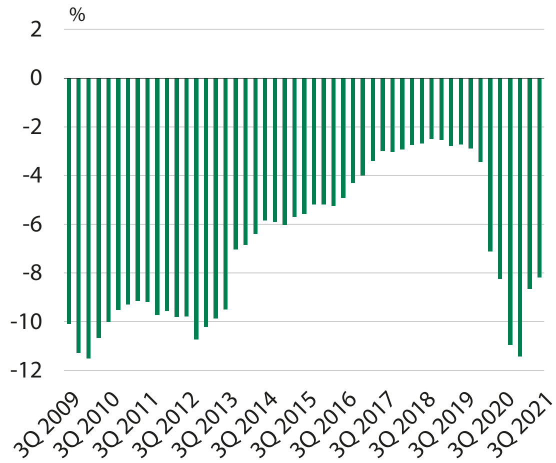


Figure 24: Public deficit (% GDP)



Cumulative data for four quarters.

Figure 25: Exchange rates

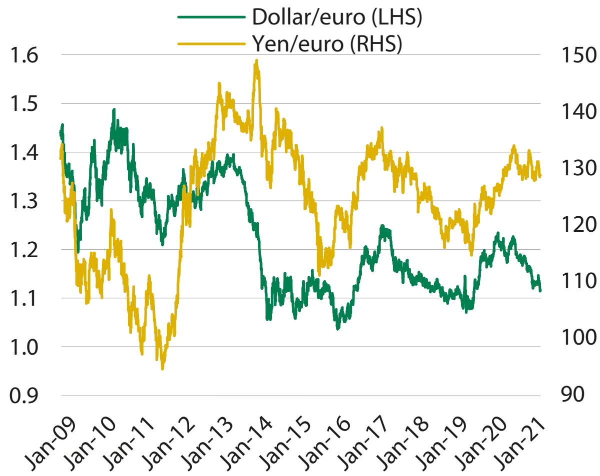
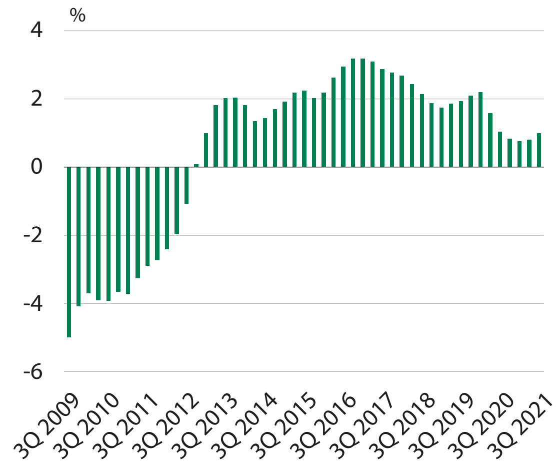
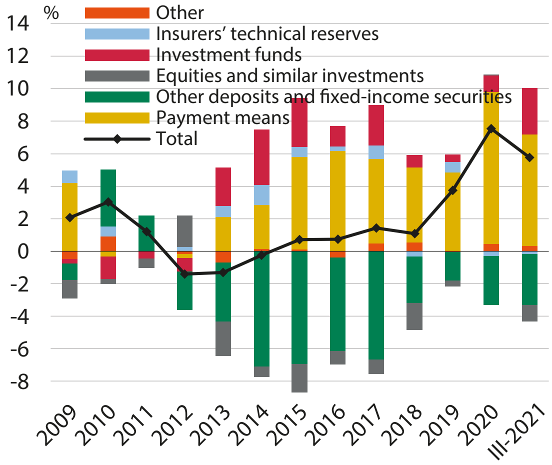


Figure 26: Current account balance (% GDP)



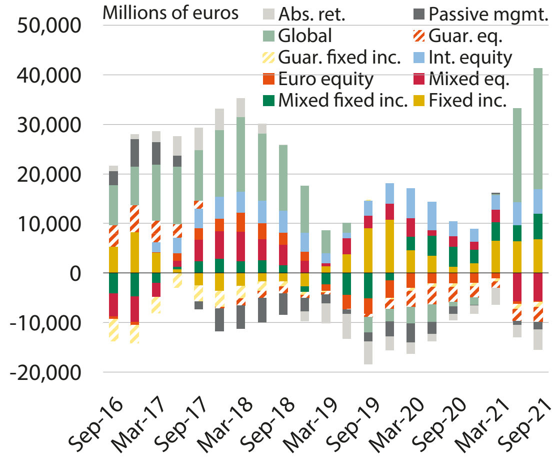
Investors

Figure 27: Households: net acquisition of financial assets (% GDP)



Cumulative data for four quarters.

Figure 28: Net subscriptions to investment funds



Cumulative data for four quarters (millions of euros).

Figure 29: Households: savings (% disposable income)

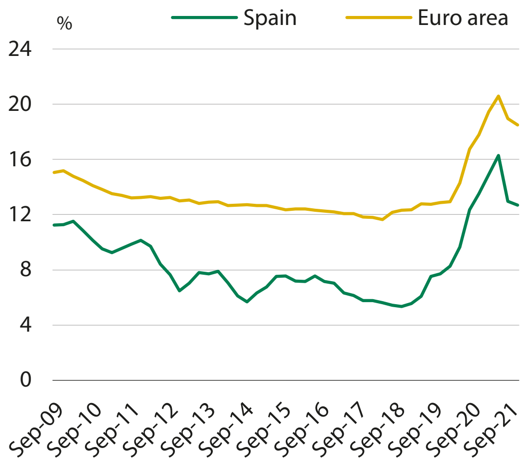
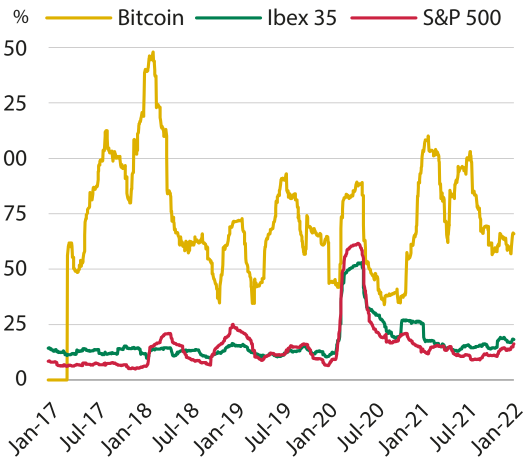


Figure 30: Bitcoin volatility



Risk of contagion: orange

Figure 31: Correlations among asset classes

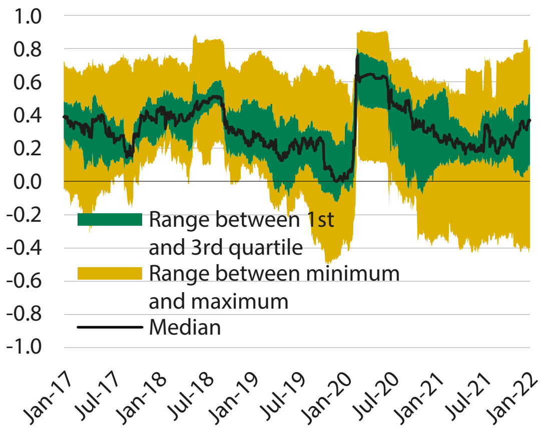
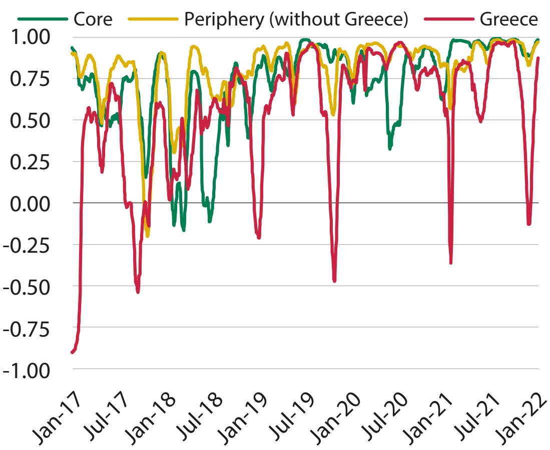
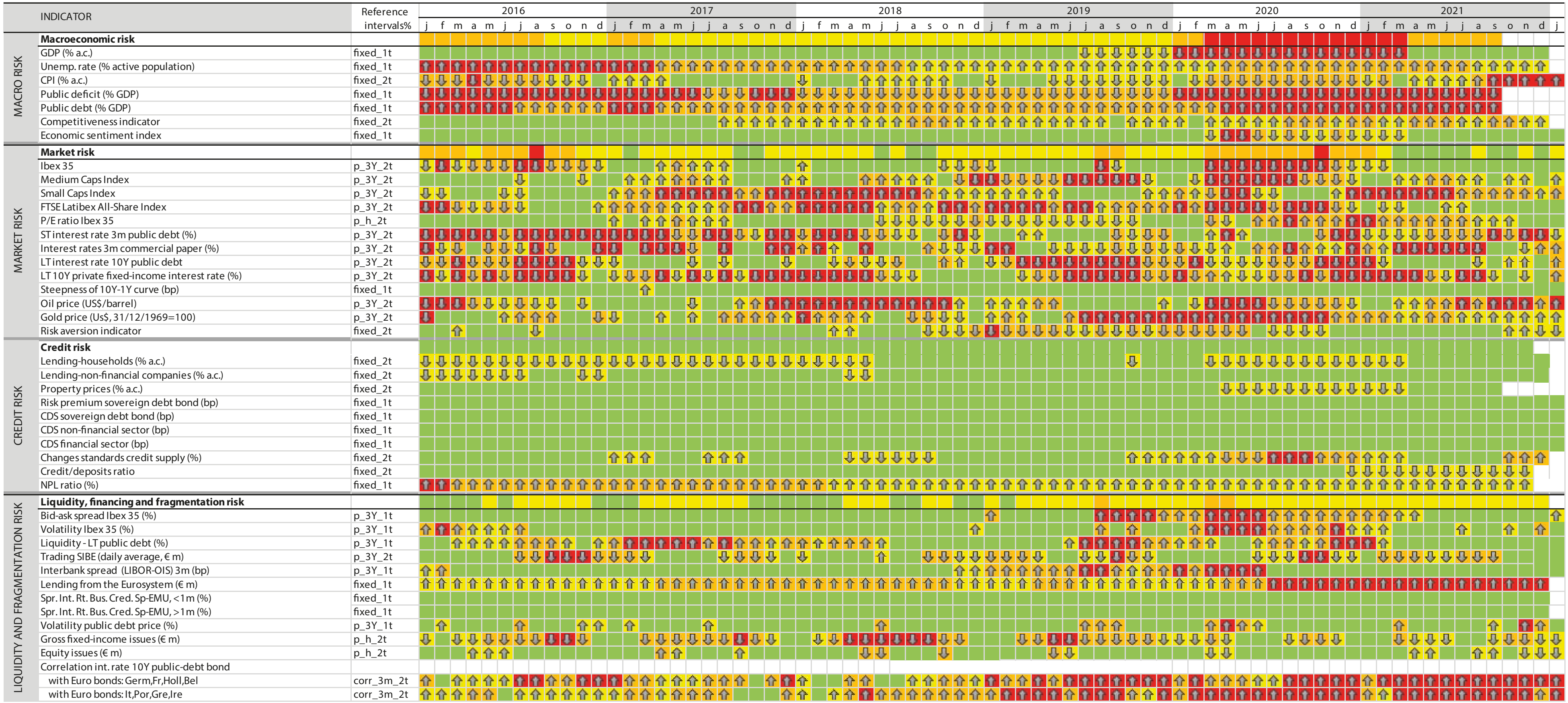


Figure 32: Correlation between the yield on Spanish and other European 10-year bonds



Heat map: risk categories



Source: CNMV, Bloomberg and Refinitiv Datastream.

1 Reference intervals could be: i) "fixed": predetermined numerical tresholds, one (1t) or two-tailed (2t); ii) "corr_3m": 3 months windows correlation coefficients; iii) "p_3Y": percentiles obtained from 3 past years distribution, one (1t) or two-tailed (2t), or iv) "p_h": percentiles obtained from historical distribution.

Explanatory notes

Spanish financial markets stress index (Figure 1): The stress index provides a measurement in real time of the systemic risk facing the Spanish financial system, ranging from zero to one. To this end, stress is evaluated in six segments of the financial system (equities, fixed income, financial intermediaries, the money market, derivatives, and the exchange markets) which are then aggregated to obtain a single figure. The stress for each segment is evaluated by means of cumulative distribution functions and the subsequent aggregation takes into account the correlation between segments, in such a way that the index places greater emphasis on stress situations in which correlations are very high. In general terms, the stress variables chosen for each segment (three for each one) correspond to volatilities, risk premiums, liquidity indicators, and sudden loss of value. These variables are good indicators of the presence of stress in the markets. Econometric estimates indicate that index values below 0.27 correspond to periods of low stress in the financial system, while scores between 0.27 and 0.49 correspond to periods of medium stress, and values above 0.49 indicate periods of high stress. The methodology of this index follows the work of Holló, Kremer and Lo Duca in 2012 to propose a similar index for the euro area. For further details on recent movements in this index and its components, see the CNMV's statistical series "Market stress indicators", available at http://www.cnmv.es/portal/Menu/Publicaciones-Estadisticas -Investigacion.aspx. For further information on the methodology of this index, see Cambón, M.I. and Estévez, L. (2016). "A Spanish Financial Market Stress Index (FMSI)". *Spanish Review of Financial Economics,* Vol. 14, No. 1, pp. 23-41 or as CNMV Working Paper No. 60 available at: http://www.cnmv.es/DocPortal/Publicaciones/MONOGRAFIAS/Monografia_60_en.pdf.

Heat map: summary by market and risk category (Figure 2 and final annex). The heat maps provided in this release show the monthly trend of the most important indicators in the Spanish financial system in recent years. They contain information on domestic securities markets, the banking sector, and also some macro-economic variables. The main purpose behind the production of these maps is to provide an idea of the position of the reference indicators in relation to their recent history (in most cases three years) or with some predetermined limits, by associating this position with a certain colour. When an indicator changes from green to a warmer colour (orange or red), it does not necessarily mean the existence of risk; rather it indicates a movement towards an extreme value (very high or very low) in the period or range of values used as a reference. If an indicator remains at extreme values for a prolonged period, it may suggest the need for a more detailed analysis; that is to say, it may be interpreted as an alarm signal. The most comprehensive heat map includes 43 indicators,[82] five of which are prepared by the CNMV. The large number of indicators taken into consideration allows us to make an analysis of vulnerabilities for each segment of the financial markets (equity income, fixed income, banking sector, etc.) or for different risk categories (macro, market, liquidity, credit, etc.), as illustrated in Figure 2. The colours of these aggregates (markets or risk categories) are assigned by calculating a weighted average of the values of the individual indicators they comprise. In each aggregate, one of the individual indicators determines the generation of the overall colour: for example, in macro-economic risk, the indicator used to calculate the aggregate is GDP. This means that until this is published, the macro-economic risk block is not given any colour in the map. For more detail on the methodology and analysis of these maps, see Cambón, M.I. (2015). "Identification of vulnerabilities in the Spanish financial system: an application of heat maps". *CNMV Bulletin*, Quarter I, pp. 109-121.

[82] Since June 2017, the heat map has included an additional indicator: the bid-ask spread of the 10-year sovereign debt bond.

Bitcoin historical volatility (Figure 30): Annualised standard deviation of daily price variations in 90-day windows.

Risk of contagion: The indicators that make up this block are of somewhat higher complexity. We set out the most important of these indicators below:

- **Correlation between assets (Figure 31).** The correlation pairs are calculated using daily data in three-month windows. There are six asset classes: sovereign debt, private fixed income from financial institutions, fixed income from non-financial firms and Ibex 35 securities, financial companies, utilities and other sectors. A high correlation between the different classes of Spanish assets would indicate the possible existence of herding behaviour by investors. This situation could lead to high volatility in periods of stress. Meanwhile, diversification would offer fewer advantages since in this context it would be more difficult to avoid exposure to sources of systemic risk.
- **Correlation between the yield on the Spanish and other European 10-year bonds (Figure 32).** The correlation is calculated using daily data in three-month windows. The countries of the core group are Germany, France, the Netherlands and Belgium and the peripheral countries are Portugal, Italy, Greece and Ireland.