CNMV
Comisión Nacional del Mercado de Valores

Financial Stability Note

No. 25, December 2023

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The Financial Stability Note is one of the CNMV's duties within the framework of its monitoring of financial stability conditions in the areas it supervises. In particular, the Note assesses the stress level of **domestic securities markets during the past half-year**, flags any changes in the level of various financial risks and identifies major sources of risk.

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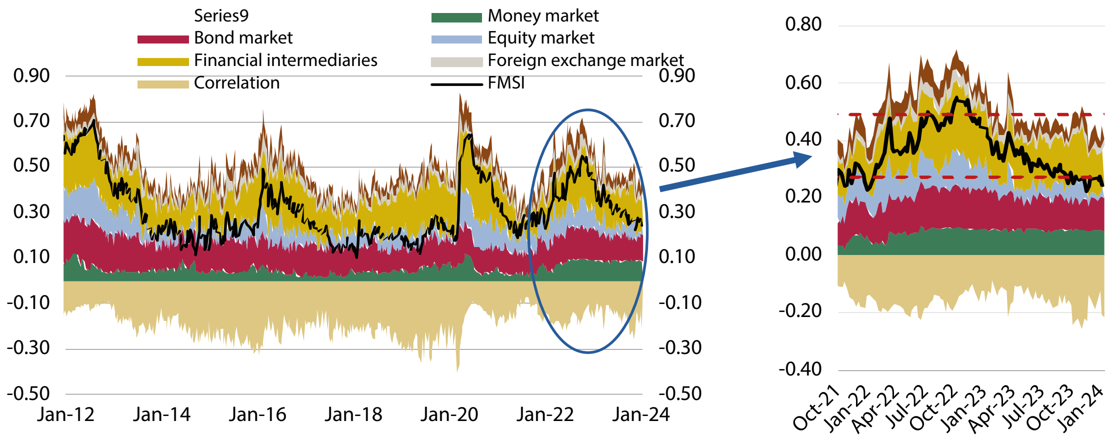
Summary

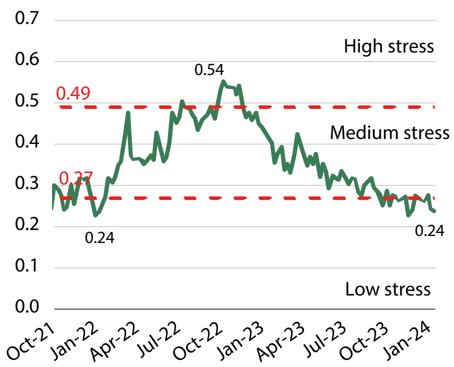
✓ **The stress indicator continues to fall, stabilising at low levels**. Thus, the most recent data[1] establishes the value of the indicator at 0.24, below the threshold that separates medium from low stress (0.27). Since mid-September, the indicator has ranged between 0.24 and 0.27 and maintains a trend in which the highest stress levels are observed in segments related to fixed income instruments (money and debt markets), due mainly to volatility spikes. In the segment of financial intermediaries (banks), the stress level has shown some downward resistance, as the effect of the recovery in prices has been offset by the slight increase in volatility. Worth noting is the substantial decrease in stress in the fixed income segment, which currently stands at 0.25, but which reached 0.04 at the end of December. Also worth noting is the decrease in the correlation of the system, which is usual at times of lower stress.

Spanish financial markets stress indicator

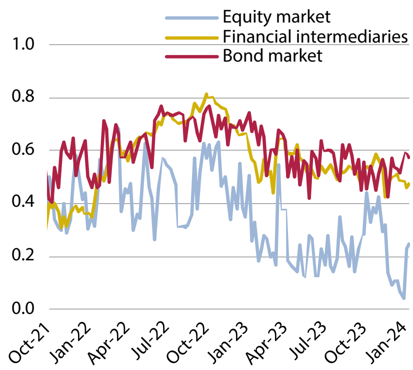
FIGURE 1



Total stress indicator



Indicators in the bond, financial intermediary and equity segments



Source: CNMV.

For more details on the recent movements in this indicator and its components, see the statistical series of the CNMV (Market stress indicators), available at: http://www.cnmv.es/Portal/Publicaciones/SeriesWeb/Inicio.aspx?codrama=1295. For further information on the methodology of this indicator, 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 Document No. 60, available at: http://www.cnmv.es/DocPortal/Publicaciones/MONOGRAFIAS/Monografia_60_en.pdf.

[1] The closing date of this note is 31 December, except for the stress indicator, which is 12 January, and other specific data.

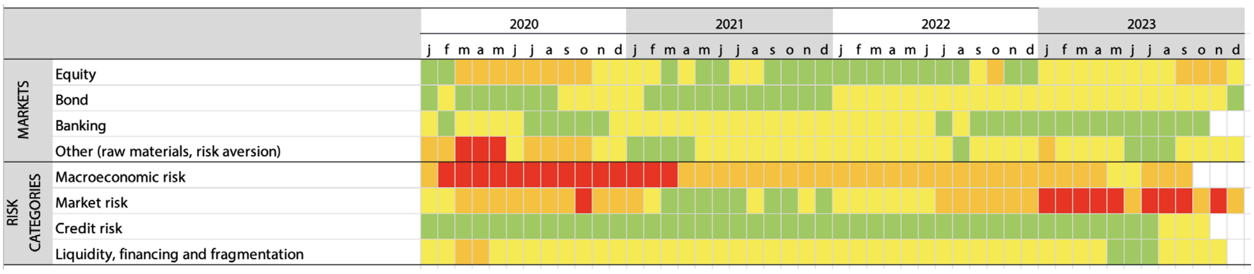
✓ **A slowdown in domestic economic activity is observed, although the relative strength of private consumption makes it possible to maintain substantially higher growth rates than those of the euro area.** GDP is estimated to grow by 2.4% in 2023 (5.8% in 2022) and by 1.6% in 2024, higher than the 0.6% and 0.8% of the euro area, respectively. The slowdown in the growth rate of prices has also been confirmed, ending the year with an annual rate of 3.1%. In any case, a high degree of uncertainty still remains, partially related to the consequences of interest rate spikes, cumulative price increases and potential second-round effects, and continued international geopolitical uncertainties.

✓ **Stock markets showed significant rallies over the year as a whole, particularly during the first and fourth quarters.** Despite the uncertainty surrounding the intensity of the economic slowdown and expectations on interest rates, the Ibex 35 recorded significant annual gains of 22.8%, second only to the Italian index in Europe. Liquidity and volatility conditions were favourable, but securities trading fell back again. In fixed income markets, most noteworthy was the increase in yields of the different instruments until October and their reversal in the final part of the year, in addition to the sharp flattening of the yield curve. At the end of 2023, the yield on the 10-year sovereign bond stood at 3% (3.6% at 2022 year-end) and the risk premium at 97 basis points (109 b.p. in 2022).

✓ **The sources of uncertainty that loom over the financial system are related to prolonged high interest rates, with the growing use of the latest technological developments applied to finance and with the existence of geopolitical uncertainties.** Maintaining interest rates at relatively high levels – although somewhat lower than in 2023 – implies prolonging the financial effort of the most indebted agents over time and may consequently affect credit risk. There is also a risk of a readjustment or reassessment of market expectations in line with economic developments. The growing use of technological developments applied to finance has many aspects, which range from crypto-assets to cyber risk and, more recently, generative artificial intelligence. All these areas could represent potential sources of instability for the financial system and, therefore, of growing interest to financial regulators and supervisors. Lastly, the presence of significant geopolitical uncertainties could generate negative spirals in the markets and loss of confidence.

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

FIGURE 2



Source: CNMV. See Cambón, M.I. (2015). "Identification of vulnerabilities in the Spanish financial system: an application of heat maps". *CNMV Bulletin*, Quarter I, pp. 103–115.

1 Data until 29 December.

Sources of risk

Macroeconomic environment: slowdown in activity and moderation in inflation

- **After a quarterly gain of 0.3%, the growth of the Spanish economy stood at 1.8% year-on-year at the end of the third quarter of 2023 (2.0% at the end of June).** This figure highlights the slowdown in activity in Spain, which had grown 0.6% and 0.4%, respectively, in the previous two quarters. This lower growth in GDP is due mainly to the decline in foreign trade, which has been affected by the complex international situation.[2] Even so and as a consequence, above all, of the good performance of national consumption, the growth of the Spanish economy continues to exceed that of the main European economies[3] which, in aggregate terms, show zero year-on-year growth, both in the European Union as a whole and in the euro area (see Figure 21).

  Forecasts for 2023 year-end, despite evidencing the slowdown of the Spanish economy, have been revised slightly upwards, due mainly to the good performance of household spending. Thus, the Bank of Spain, in its latest December economic projections report, estimates that Spain's GDP will grow by 2.4% in 2023 (one-tenth more than in September).[4] These figures maintain the growth of the Spanish economy notably above the estimates for the euro area (0.6% according to the European Central Bank, ECB). However, forecasts for 2024 have been revised downwards in recent months (to around 1.6%),[5] in an environment marked by high levels of geopolitical risks.

- **720,100 jobs were created between September 2022 and 2023, representing growth of 3.5%, due mainly to the good performance in the second and third quarters of the years.[6]** This development led to an increase in the activity rate of nearly 1 percentage point (p.p.) between March and September, standing at 59.4%. However, the number of unemployed increased in the third quarter by 92,700 people, which led to a slight increase in the unemployment rate to 11.8%. However, taking the last 12 months into consideration, unemployment fell by nearly one-tenth. The forecasts of the Bank of Spain for 2023 year-end indicate that the unemployment rate would stand at 12.1% (11.7% at 2024 year-end).

  The figures of new social security registrations in December show a slight monthly decrease in the number of contributors of nearly 29,000, closing the month with 20.73 million contributors. However, so far this year the increase in the number of contributors has been nearly 574,000, continuing the positive trend of the last three years.

- **The inflation rate, which had increased significantly in summer (from 1.9% in June to 3.5% in September), ended the year at 3.1% year-on-year, after a decrease of four-tenths in the last two months of the year.** However, the underlying inflation rate[7] moderated gradually over the last ten months of the year, falling from 7.6% in February to 3.8% in December. Among the components of the general rate, processed and

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2 The contribution to year-on-year GDP growth from foreign demand was zero (0.0 p.p. compared to 2.3 p.p. the previous year), due to which the contribution of domestic demand stood at 1.8 p.p. (3.0 p.p. in September 2022).

3 For example, in Germany and France growth rates in the third quarter were -0.1% in both cases, the same figure as the average of the euro area. In year-on-year terms, growth in these two countries was -0.4% and 0.6%, respectively.

4 The estimates of the European Commissions and Funcas coincide with those of the Bank of Spain, after having revised both institutions upwards by two-tenths, while the International Monetary Fund (IMF) forecasts growth of 2.5%.

5 Meanwhile, the Bank of Spain estimates GDP growth for 2024 of 1.6% (two-tenths less than in September and six-tenths less than in June), while the European Commission and the IMF estimate growth of 1.7%.

6 Between March and September 2023, the number of employed persons increased by more than 800,000 after decreasing slightly in the previous two quarters.

7 This is calculated excluding the most volatile elements, specifically energy and fresh produce, from the general index.

unprocessed food products continued to show the highest annual variation in price, although their growth has eased to 6.9% and 7.9%, respectively (16.4% and 11.4%, respectively, in December 2022). The prices of non-energy industrial goods and services grew by 1.3% and 3.9%, respectively. Furthermore, **the inflation gap between Spain and the euro area, which had remained negative for one year, changed sign in October and stood at 0.4 p.p. at the end of 2023.**

- **The information available on public sector finance corresponding to October continues to show a contraction in public deficit, but at a significantly slower pace than in previous months.** Thus, the consolidated deficit of the general government sector[8] in the first ten months of the year stood at 1.29% of GDP, below the 1.40% in the same period of 2022.[9] The level of public debt continued to decline in the third quarter of the year, reaching 109.8% of GDP, down 4.2 p.p. on September 2022. The forecasts of the Bank of Spain estimate a public deficit of 3.8% of GDP for 2023 and 3.4% for 2024,[10] whereas public debt would range between 107% and 106% in the same years.

- **The data from the Financial Accounts of the third quarter of 2023 show a gradual increase in the household savings rate since the beginning of 2023.** Thus, it represented 11.0% of disposable income (cumulative data for four quarters) at the end of the third quarter, compared to 9.9% in June and 7.2% at 2022 year-end, still below the levels of the euro area (13.8%). The net acquisition of financial assets decreased from 2.8% of GDP in 2022 to 2.5% in September (cumulative data for four quarters)[11] and, as a result of rising interest rates, there continued to be significant disinvestment in payment means (cash and demand deposits), with outflow of funds of nearly €29 billion in just one quarter (€57 billion in one year, 4.0% of GDP) and investment in term deposits and fixed income securities (€22 billion between June and September and €64 billion in one year). Investment funds also recorded significant inflows of resources in excess of €27.50 billion between September 2022 and September 2023.

  The available data on Spanish investment funds in the third quarter of the year show that inflows of funds continue in more conservative categories and redemptions in those considered riskier. Thus, fixed income funds continued to receive, by far, the largest volume of investments (€5.20 billion)[12] compared to €1.25 billion in passive managed funds. In contrast, net redemptions of €1.25 billion were observed in global funds, as has been the case since mid-2022.[13]

  Positive net subscriptions in the third quarter of 2023 led equity to increase slightly by 0.5% between June and September, despite the devaluation of the investment portfolio. Net subscriptions, while significantly lower than in the first six months of the year, exceeded €2.60 billion, whereas the value of the portfolio's assets fell by €920 million. Thus, at the end of September, fund assets exceeded €329 billion, nearly €28 billion more than at the end of 2022. However, the assets of foreign collective investment schemes (CIS) marketed in Spain fell by 3.8% in the third quarter to €213.40 billion, although this figure is 6.1% higher than at 2022 year-end.

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8 Excluding local corporations and aid to financial institutions.

9 This decrease was due to the improvement in central government (-1.1% of GDP compared to -1.4% one year earlier) and, to a lesser extent, in local governments (-0.15% compared to -0.45%), whereas social security funds declined (from 0.43% to -0.02%).

10 The European Commission and the IMF estimate a higher deficit for 2023 (4.1% and 3.9%) but lower for 2024 (3.2% and 3.0%).

11 The rise in interest rates has led to a decline in household liabilities. Thus, their level of debt fell from 52.3% to 48% of GDP in the first nine months of 2023.

12 In the last four quarters, net subscriptions amounted to nearly €25 billion.

13 In the last four quarters, net redemptions exceeded €11 billion.

Interest rates context: end of the rate hike cycle

- **The world's major central banks continued to raise their interest rates during most of the second half of last year, reaching the highest levels of the last decades in the third quarter, with the aim of combating high inflation rates.** However, the slowdown in price increases and the moderation in the tone of messages from the monetary authorities led market agents to believe that the rate hikes were over and that the first rate cuts would take place before the end of the first half of 2024. However, it should be noted that underlying inflation showed significant downward resistance,[14] in a context of certain labour market dynamism.

- **After starting 2023 with rates at 2.5%, the ECB continued to tighten its monetary policy with six consecutive additional rises, spiking at 4.5% at its meeting in September,[15] its historical maximum.** As mentioned earlier, the slowdown in the growth of inflation also allowed the pace of rate hikes to slow down as the year progressed. Also, the normalisation of the ECB's monetary policy comprised the finalisation in July of the reinvestment of maturities of bonds acquired under the Asset Purchase Programme (APP). The ECB announced further progress in this regard with the envisaged decrease in bond maturity reinvestments in the second half of 2024 under its Pandemic Emergency Purchase Programme (PEPP) at a rate of €7.50 billion per month and the conclusion of reinvestments at the end of the year, with the aim of reducing the size of the Eurosystem's balance sheet.

- **The Federal Reserve, which had brought forward the tightening of its monetary policy to 2022, also moderated the pace of the rises in 2023.** The institution reduced the pace and amount of its rises, accumulating four hikes of 25 b.p., which set rates within the range of 5.25%-5.5%[16] in July, its highest level since 2001. The Federal Reserve kept rates unchanged in the last three meetings and anticipated three rate cuts in 2024, although its officials reiterated that its monetary policy would continue to be restrictive for some time and showed a high degree of uncertainty as to when the first rate cuts would take place. Furthermore, the Bank of England also slowed down the pace of its rate hikes[17] to 5.25% in August, their highest level in 15 years, although its officials do not rule out additional hikes, given the persistently high levels of inflation.[18]

- **In this context, interest rate risk continued to moderate due to its impact on the valuation of debt assets, and the incentive of strategies aimed at preserving the value of money in the face of the threat of inflation was reduced.** Interest rate hikes, which had led to major valuation losses on fixed-income asset portfolios in 2022 and even in the first half of 2023, appear to show a reversal of this trend since the last months of 2023, as reflected in the falls in debt rates in primary and secondary markets. Although temporary rate rebounds that could also have a temporary impact on asset valuation cannot be ruled out, the highest risk could be concentrated in assets with a lower credit rating in the case of an eventual deterioration of the economic situation. Furthermore, the loss in value of the most liquid assets and risk-free assets due to inflation is offset by the increase in remuneration of the latter, reducing investor incentives to search for yield and invest in assets with higher expected returns and, therefore, with high associated risk levels.

[14] The ECB itself does not rule out the possibility of a temporary rebound in inflation in the short term and that, although underlying inflation has moderated, inflationary pressures continue to be intense, due mainly to the strong growth in the unit cost of labour.

[15] The ECB raised rates by 50 b.p. in February and March, and by 25 b.p. in March, June, August and September.

[16] The Federal Reserve accumulates 11 consecutive rate hikes since March 2022.

[17] The Bank of England rose rates by 50 b.p. in February and June, and 25 b.p. in March, May and August, thereby accumulating 14 consecutive hikes since December 2021.

[18] UK CPI stood at 3.9% in November, while underlying inflation reached 5.1%.

Furthermore, although maintaining rates at high levels favours the improvement of margins and profitability of the financial sector, this could give rise to a certain increase in corporate and household defaults in the medium term, which would be more acute in the most indebted and financially more vulnerable agents. Moreover, the tightening of bank financing conditions could stimulate the activity of alternative markets aimed at smaller issuers, such as BME Growth and the Alternative Fixed Income Market.

Crypto-assets, cyber risk and artificial intelligence (AI)

Crypto-assets[19]

- **The most important risks observed in relation to crypto-assets are associated with market integrity, investor protection and financial stability.** These risks, as mentioned in previous issues of this publication, are inherent to this type of assets and their potential use in illegal activities,[20] within a still very limited regulatory framework and lacking information of sufficient quality with which to assess some of these risks. Supranational institutions such as the Financial Stability Board (FSB) have recently drawn attention to the risks related to multifunction crypto-asset intermediaries[21] (MCI). These intermediaries are companies or groups of companies that provide a very wide range of crypto-asset-related services, products and functions, usually concerning the operations of a trading venue. Most of these activities have their analogue in traditional finance, but are not usually provided by the same company or, if they are, are subject to very strong restrictions and controls that adequately prevent or manage conflicts of interests and ensure fulfilment of risk management procedures.
- **From the standpoint of financial stability, risks are related to the size of the sector and its interconnectedness to traditional financial markets.** Both elements indicate that risks continue to be limited, but some recent information in this connection should be noted. First, their penetration in the Spanish investor portfolio is still small, but their interest is growing, particularly in the young investor age group. Thus, in accordance with the latest Survey of Financial Competences, 5% of the population would have acquired cryptocurrencies in the last two years, a percentage that increases up to 13% for young investors (between 18 and 34 years old). Investment in cryptocurrencies by men (8%), individuals with a baccalaureate and university graduates (7%-8%) is also higher than the 5% average. Moreover, the size of the crypto-asset sector grew substantially in 2023, following the sharp decline in 2022. It is estimated that the total capitalisation of cryptocurrencies grew by 107% in 2023, exceeding US$1.5 trillion (see Figure 39). Part of the upward market trend could be attributed to the expected approval by the US Securities and Exchange Commission (SEC) of the first bitcoin ETFs (Exchange Traded Funds), a possibility that was confirmed at the start of 2024. Lastly, in contrast to the trend observed in previous years, 2023 saw increasing correlation between the price of the main cryptocurrencies and equity indices, a factor that increases the vulnerability of the system in the event of a shock.

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19 As of this issue of the *Financial Stability Note*, a figures panel on crypto-assets with data on capitalisation, trading, prices, volatility and other relevant indicators (Figures 39-43) will be included in the appendix.

20 For example, in November, Binance was sentenced to pay a fine of €4.30 billion for violating US money laundering laws.

21 FSB (2023). *The Financial Stability Implications of Multifunction Crypto-asset Intermediaries*. Available on: https://www.fsb.org/wp-content/uploads/P281123.pdf

- **In regulatory matters, worth highlighting is the European Regulation on Markets in Crypto-Assets (known as MiCA)**, which regulates the issuance, offer and trading thereof, in addition to providing crypto-asset-related services and rules relating to the prevention of market abuse. During the current implementation phase until December of this year, the European Securities and Markets Authority (ESMA), together with national supervisory authorities and European supervisory agencies, is preparing the technical standards and guidelines of this Regulation. There is an additional transitional period of up to 18 months in which to continue operating without a MiCA licence, which ESMA recommends reducing to 12 months and that the Spanish Government has announced it will do (which leads to January 2026). ESMA has urged both market participants and national authorities to prepare the transition. As regards market participants, ESMA has requested current crypto-asset service providers to inform their clients of the regulatory status of their crypto-assets and services and of their transition plans, to anticipate the entry into force of the MiCA, and to align their practices with this Regulation and request authorisation as soon as possible.
- **In Spain, it should be recalled that two years ago the CNMV issued a circular (Circular 1/2022) on the advertising of crypto-assets presented as a means of investment,** which represented a relevant step forward in investor protection. In the context of this Circular: i) 1,647 advertisements were reviewed and 314 information requirements sent, ii) it was agreed to initiate disciplinary proceedings against one entity, and iii) 205 actions were filed, after correcting or eliminating the advertisements at the CNMV's request.
- **Lastly, and also in Spain, it should be noted that last year the CNMV authorised BME Clearing to expand its clearing services and include bitcoin- and Ethereum-linked index futures in its offering.** This service is aimed only at institutional investors. Said BTC- or ETH-linked cryptocurrency index futures would be settled in dollars and the calculations would be based on the prices of the most liquid platforms, provided that certain eligibility conditions are met. The Spanish institution will not hold cryptocurrencies in custody. BME Clearing becomes Europe's first European central counterparty (CCP) institution authorised to clear these products following exhaustive verification processes pursuant to EMIR.

Cybersecurity

- **The risk of cyberattacks continues to be one of the most relevant for the global financial system.** This is confirmed by various surveys conducted on market participants and risk reports issued by supervisory authorities. The number of cyberattacks on a global scale, which reached an all-time high in 2022, remained constant in the first half of 2023, although in specific sectors, for example, financial companies, a 30% increase was observed.[22] This risk is increased by the development of digitalisation, the growing use of outsourcing and cloud-based solutions, and the growth in technology-intensive activities, such as artificial intelligence. It is complicated to know the exact number of cyberattacks and associated costs, as in many cases they are not disclosed and their costs are difficult to quantify. However, their intensification may pose a systemic risk in the event that a critical institution is affected by a cyberattack or if multiple attacks are made to non-systemic but highly interrelated entities.

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[22] Data obtained from the ECB (2023). *Financial Stability Review.* November. Available at: https://www.ecb.europa.eu/pub/financial-stability/fsr/html/ecb.fsr202311~bfe9d7c565.en.html

- **At the regulatory level, the most important legislation on cybersecurity in the European Union is the Regulation known as DORA,[23] which was approved in December 2022 and will be applicable as of January 2025.** This Regulation establishes a cross-cutting cybersecurity framework across the financial sector and encompasses both market infrastructures and institutions that offer services in securities markets and the banking and insurance sectors. The CNMV would be the authority responsible for its application to the financial institutions under its supervision. It should be noted that mechanisms for applying the principle of proportionality have been established and that, during the 24 months available for the adaptation, the most important works are those related to the development of RTSs (regulatory technical standards), ITSs (implementing technical standards), common guidelines and delegated acts on different areas of the Regulation (management of ICT incidents, testing of operational resilience, management of third-party risk…).
- **Cybersecurity risk management requires significant investment, in addition to achieving a high degree of collaboration and coordination between the different sectors and authorities with the aim of preventing and mitigating the consequences associated with a cybernetic attack.** In this connection, in Spain worth noting is the preparation of the *Good Governance Code on Cybersecurity*[24] by the National Cybersecurity Forum, disclosed by the CNMV in July last year. After the analysis made by a group of experts of the different existing regulations and standards on the subject, the objective of the Code is to propose a set of practices to organisations aimed at supporting a cybersecurity good governance model and facilitate its management in information networks and systems. This Code, which is articulated around 13 principles, offers recommendations of general scope that can contribute to improve the decision-making process in this field by the governing bodies of the institutions. The first principle of the Code addresses the topic of proportionality and the other principles are divided into strategy and organisation, management and supervision.

Artificial intelligence

- **The use of tools based on the technology provided by artificial intelligence (AI), particularly the so-called generative artificial intelligence (GenAI), has grown substantially in 2023 both at the global scale and in financial markets.** In general, off-the-shelf technological solutions offered by the companies providing these technologies are being adopted and a wide range of operations and financial services are applied. The most important advantages provided by this technology are related to speed and efficiency in decision-making or the execution of some processes. GenAI offers many possibilities in the field of financial markets, including applications that make it possible to synthesise and extract information from documents or prepare said documents, make financial decisions, improve the institution's management processes and the financial services provided to clients (help-desk), drive the work of information systems (code generation), etc.
- **In accordance with the existing information derived from some surveys, most market operators (for example, CCPs or data reporting service providers) and rating agencies are already using GenAI tools in their businesses** or plan to do so in the near future. The use of these tools is at a relatively early stage and is based mainly on off-the-shelf solutions. Specific tools have only been developed for specific business needs in few cases.

[23] Regulation (EU) 2022/2554 of the European Parliament and of the Council, of 14 December 2022, on the digital operational resilience of the financial sector.

[24] https://foronacionalciberseguridad.es/index.php/documentacion/publico/124-good-governance-code-on-cybersecurity/file

- **The identified risks of using AI** are related mainly to the vulnerabilities associated with obtaining erroneous or biased results, data protection and privacy, cybersecurity breaches, accountability for decisions made or results obtained, and also with the possible overconfidence they can generate in users.
- **From the standpoint of the perceived risks to financial stability,** the main areas of interest in a first analytical stage would be as follows:
  - **Risks related to the harmonisation of risk assessment and investment decisions by investors**, which would be partially due to the concentration of AI providers. This harmonisation implies a higher degree of "herding behaviour" and, therefore, increased interconnections and pro-cyclicality. Therefore, an adverse shock could have a more serious impact on the financial system as a whole.
  - **Risks related to cybersecurity.** There is a risk that the data that feed AI models could be manipulated, substituted, distorted, etc., in the event of a cybernetic attack. In such case, financial decisions made by agents could deviate substantially from those that would have been made based on appropriate data. Once again, these investors can lead to negative market spirals in certain situations.
  - **Risks arising from the model.** These relate namely to those arising from the biases that may derive from the results of some models or from those which, in general, are not well trained. In such cases, there may be an erroneous risk assessment and, therefore, increased probability of market turbulence, with the consequent risk to financial stability.

Risks related to climate change[25]

- **ESG (environmental, social and governance) aspects are consolidated as a relevant element in agents' financial decisions.** Investor interest in financial products with ESG characteristics has grown substantially in recent years, although in 2023 a certain stabilisation (and, in some cases, decline) of the figures of some products has been observed, a trend that could be partially associated with interest rate hikes, economic uncertainty and growing concern about the potential risk of greenwashing. Thus, for example, in the case of Spain, the number of CISs availing themselves of articles 8 and 9 of the SFDR Regulation[26] was 333 and 17, respectively, at the end of last year[27] (343 investment funds, five SICAVs and two hedge funds) and their assets totalled €119 billion, accounting for 33% of the total assets of Spanish CISs. This percentage has remained fairly stable since September 2022. The number of unitholders in these institutions is proportionally higher, standing at 7.74 million and accounts for more than 47% of total unitholders. Furthermore, ESG debt issues made by Spanish issuers rose to €17.23 billion in 2023 as a whole, below the €21.43 billion of 2022 and the close to €25 billion in 2021, year in which an all-time high was recorded for this series. By sector, declines were recorded in issues made by financial institutions and public administrations, and progress in corporate issues.[28] With regard to the type of debt, declines in green bond (which, by far, remained the most

25 As of this issue of the *Financial Stability Note*, a figures panel on sustainable finance with information on investment funds, ESG fixed income issues and other relevant indicators (Figures 33-38) will be included in the appendix.

26 European regulation on the disclosure of information relative to sustainability in the financial sector, known as SFDR (European Disclosure Regulation). Article 8 includes investment products that promote sustainable characteristics within the framework of a general strategy and Article 9 includes the products that specifically set sustainability objectives within the decision-making process.

27 Compartment data, in September.

28 Private sector issues (financial institutions companies) totalled €12.33 billion, below the €14.09 billion of the previous year. This amount accounts for 5.7% of the total issues of this sector and 11.2% of long-term issues, slightly less than in 2022 (6.2% and 13%, respectively).

relevant) and social bond issues, and increases in sustainable bond and sustainability-linked bond issues were observed[29] (see Figures 35 and 36).

- **The most relevant risks associated with sustainable finance are those related to the adequate valuation of financial products with ESG characteristics, with the evaluation of the risk map linked to climate change and with the possible existence of greenwashing, as mentioned earlier.** Numerous studies have been carried out by different institutions in all these areas in an attempt to shed some light on the development of different regulatory instruments at the European level, which will partially tend to mitigate some of the risks identified. Some of the most recent studies include the following:

  With regard to studies related to the assessment of risks to institutions in the financial system and, in particular, institutions under the supervision of securities regulators, worth noting is the progress being made, for example, in investment fund stress tests. These exercises began as static tests that estimated the impact of certain climate transition scenarios in the portfolio of these institutions[30] and the latest proposals also contain a dynamic component that attempts to model the response of investors in these scenarios (in terms of net flows) and of fund managers (in terms of reorganisation of the investment portfolio). In short, the aim is to progressively develop and improve a methodology that makes it possible to evaluate, in the best possible manner, the degree of resilience of the sector to certain adverse theoretical scenarios related to climate change.[31]

  As regards the assessment of financial products with ESG characteristics, worth noting are the studies conducted to date to contrast the possible evidence of "greenium" in fixed income assets. The most recent evidence for both the European Union[32] and Spain[33] points to the non-existence of said "greenium", at least in secondary debt markets, although for the sample of Spanish debt assets certain evidence of this phenomenon has been identified in the primary market in green bonds with CBI (Climate Bonds Initiative) certification.[34]

  Lastly, studies related to clarifying and improving the transparency of financial products with ESG characteristics are numerous and diverse in nature. These studies, which highlight the relevance of the names and labels, in general, of products for investors, aim to improve agents' informed decision-making processes and reduce the greenwashing phenomenon to the extent possible. The relevance of the use of words related to ESG or sustainability concepts in the names of EU investment funds was recently addressed by ESMA in a study that highlights how these funds have received greater investment flows than other funds that do not use this terminology.[35] In this connection, this same institution plans to publish some guides in the second quarter of this year so that only those funds that meet certain investment criteria can use the acronym ESG or sustainability-related terms in their names.[36]

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29 Green bonds are debt instruments whose funds are aimed specifically at financing environmental or climate change-related projects. Social bonds are debt instruments intended to finance social projects that obtain benefits for vulnerable population groups Sustainable bonds combine the financing of environmental and social projects. Sustainability-linked bonds are bonds whose financial characteristics change in accordance with the fulfilment or non-fulfilment of certain sustainability objectives.

30 https://www.cnmv.es/DocPortal/Publicaciones/MONOGRAFIAS/DT_81_Measuring_Transition_Risken.pdf

31 ESMA50-524821-3073_TRV_Article_Dynamic_modelling_climate_shocks_fund_sector.pdf (europa.eu)

32 ESMA50-524821-2938_The_European_sustainable_debt_market_-_do_issuers_benefit_from_an_ESG_pricing_effect_0.pdf (europa.eu)

33 See CNMV (2023). *Financial Stability Note*. June. Available at: https://www.cnmv.es/DocPortal/Publicaciones/NotaEstabilidad/Nota_Estabilidad_Financiera_ENen.pdf

34 CBI certification, which makes it possible to label sustainability-linked entities, assets, bonds, loans and other debt instruments, is voluntary and indicates that the asset is in line with the Paris Agreement on climate change.

35 TRV Article - ESG names and claims in the EU fund industry (europa.eu)

36 ESMA34-1592494965-554_Public_statement_on_Guidelines_on_funds__names.pdf (europa.eu).

Other initiatives related to the labelling or classification of ESG assets are: i) the EU green bond standard[37] and ii) the eco-label for retail financial products in the European Union. The EU green bond standard, published at the end of 2023, establishes: i) uniform requirements for the issuance of bonds under the name "European green bond (EuGB)", ii) optional information disclosure templates for other sustainability-linked bonds issued in the EU without the "green" label and, lastly, iii) a system for registering and supervising external European green bond verifiers. Furthermore, the eco-label for financial products for retail investors is under development[38] and has a similar spirit: the objective is for the financial products that voluntarily use this label to meet certain criteria, such that investors can make comparisons between products, their transparency is improved and the risk of greenwashing is minimised.

Other sources of uncertainty: high levels of geopolitical uncertainties and increase in other uncertainties

- **Geopolitical uncertainties remain at very high levels.** To the geopolitical risk arising from Russia's invasion of Ukraine, which remains since 2022, we must add the armed conflict between Israel and Hamas in recent months which, while it has not yet caused major disruptions in financial markets, is one of the main sources of uncertainty.

- **Other international sources of uncertainty are related to the upcoming US presidential elections and to the delicate diplomatic relations between the United States and China,** including the status of its trade relations. The situation shows a certain fragility, such that any change in the socio-political reality or triggering of any external event of international importance could cause negative spirals in financial markets and increase the risk aversion of market participants.

- **In the specific case of the Chinese economy, the vulnerabilities associated with its current real estate crisis should be borne in mind.** The risk arises from the consequences that this crisis may have on the Asian economy and, given its international economic relevance, on the other economies. It is therefore a potential source of contagion that could arise from the lower demand for goods and services from China or, more generally, from the decline in agent confidence.

- **A final element of political uncertainty, at nationwide level, is related to the result of the different electoral processes that took place in 2023.** The degree of parliamentary fragmentation, perceived as a source of uncertainty when adopting decisions of different nature, has intensified in relation to previous editions of this publication.

[37] Regulation (EU) 2023/2631 of the European Parliament and of the Council, of 22 November, on European green bonds and the disclosure of optional information for bonds marketed as environmentally sustainable bonds and for sustainability-linked bonds. https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=OJ:L_202302631

[38] Product Bureau | Circular Economy: Environmental and Waste Management (europa.eu).

Risk categories

Market risk: orange

- **International equity markets, which had begun the second half of the year with losses, following recent central bank rate hikes,[39] subsequently resumed the upward trend of the first part of the year due, among other factors, to the prospects that the rate hikes may have come to an end and to information on better business performance than expected.** These prospects, based on the good performance of inflation and its expectations, had envisaged the first rate cuts in upcoming months.[40] This enabled almost all the markets to end the year with significant rallies, which led US and some European markets to end the year on an all-time high.[41]

- **All international indices showed significant gains in the fourth quarter,[42] amply offsetting the accumulated loss in the third quarter and extending the gains accumulated in the first half of the year, which made it possible to fully recover the losses of the previous year in almost all cases.[43]** The evolution of the final part of 2023 was, however, somewhat weaker as a result of certain doubts about the evolution of inflation, in a context of a soft landing of the economy. The most even behaviour corresponded to euro area markets, whereas the most disparate behaviour corresponded to US markets, where some of their indices were affected by the problems that appeared in the financial sector in spring, but in turn reflected the favourable effects of the recovery of the technology sector. Furthermore, the Japanese market rallies[44] stood out, in contrast to the weak behaviour of the British index FTSE 100, which grew by only 3.8%.

  US indices showed gains over 2023 as a whole, which ranged between the 13.7% of the Dow Jones and the 43.4% of the Nasdaq,[45] while the gains of the more general S&P 500 grew by 24.2%.[46] The behaviour of the Dow Jones, with a greater weight of companies from the traditional economy – banks and industry –, was dragged down by the problems of some financial institutions,[47] whereas the Nasdaq[48] benefited from the recovery of the technology sector on the back of the development and progress of artificial intelligence.

  The gains of the main European[49] securities markets were more even, with rises that ranged between the 16.5% of the French benchmark index and the 28% of the Italian index, due

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[39] The ECB made its last rate hike at the end of September, reaching an all-time high of 4.5%, while the Federal Reserve raised its rates at the end of July a further 25 b.p, within the range of 5.25%-5.5% (the highest in 22 years).

[40] See "Interest rates context: end of the rate hike cycle".

[41] All the major US indices (Dow Jones, S&P 500 and Nasdaq), the German index Dax 30, the French index Cac 40 and the European Eurostoxx 50 ended the year on an all-time high.

[42] US indices accumulated gains ranging between the 11.2% of the S&P 500 and the 13.6% of the Nasdaq, while in the case of European indices the gains in the same period fluctuated between the 1.6% of the British index FTSE 100 and the 8.9% of the German Dax 30. Furthermore, the European Eurostoxx 50, the French Cac 40 and the Italian FTSE Mib grew by 8.3%, 5.7% and 7.5%, respectively.

[43] All the major European and US indices recovered the losses accumulated in 2022 except the Nasdaq, which recovered to a large extent and reached levels similar to those at 2021 year-end.

[44] The Japanese indices Nikkei 225 and Topix grew by 28.2% and 25.1%, respectively.

[45] A significant part of the Nasdaq's values accumulated gains between 50% and 100% and even higher during the year. Among them, companies such as Amazon, Apple, Google, Meta, Microsoft, Nvidia and Tesla, with gains of more than 200% in some cases.

[46] The S&P 500 index is the most representative of the US economy and includes all sectors, from technology to industry. The weight of technology companies in this index accounts for nearly 29%, compared to 26% at 2022 year-end. Of the top ten companies by weighting in this index, eight are technology stocks and account for almost 27% of the total.

[47] These problems were caused, inter alia, by imbalances in their balance sheets, such that the spikes in interest rates caused significant valuation losses.

[48] The Nasdaq index fell by 33.1% in 2022 after three consecutive years of significant growth.

[49] In the euro area, growth ranged between the 28% of the Italian FTSE Mib and the 16.5% of the French Cac 40. Furthermore, the European Eurostoxx 50 grew by 19.2%, reaching 20.3% in the case of the German Dax 30. Furthermore, outside the euro area, the British FTSE 100 grew by 3.8%.

mainly to the good performance in the fourth quarter and expectations about the evolution of rates, leaving aside fears of an abrupt slowdown in the economy or even a possible recession. During the year, the Italian index FTSE Mib showed the best performance, followed by the Spanish Ibex 35, which grew by 22.8%, both benefiting to a large extent from the positive trend of the financial sector, due mainly to the increases in rates.

- **In Spain, the Ibex 35 – as mentioned earlier – grew by 22.8% in 2023, the second-best performance of the major indices of the euro area.** Except for a small drop in the third quarter (-1.7%), the index showed good performance in every quarter, which was consolidated in the fourth quarter (7.1%) and ended the year above 10,100 points, its highest value since 2018. The Spanish index benefited from the greater weighting of the financial sector, in addition to the good performance of consumer goods and services, which showed relatively better performance than other sectors, in line with the good corporate earnings performance. Even so, the better performance of the Spanish index in the year was not enough to close the performance gap opened with European indices in recent years. Furthermore, despite the rise in quoted prices in the second half of the year, the good corporate earnings performance caused the price-earnings ratio (PER) to remain broadly unchanged, falling from 11 in mid-June to 10.8[50] in December. These values are lower than the historical average of this indicator (13.4), which is usually associated with low asset valuations (see Figure 4).

- **The financial and consumer goods sectors showed an upward trend in the third quarter, which extended into all sectors in the fourth quarter.** They all recorded positive growth in 2023 as a whole, including most notably that of the financial sector and the goods and consumer services sector. The best performance corresponded to the consumer goods sector (44.3%) due to the good performance of Inditex,[51] in addition to consumer services companies, favoured by the good results of the tourism, leisure, hospitality and transport sectors. The financial sector also recorded significant growth thanks to the maintenance of the positive effect of interest rate hikes on banks' margins, as well as, to a lesser extent, sectors linked to industry, engineering and construction. Meanwhile, the declines and weaker performance corresponded to oil companies, which were affected by the fall in crude oil prices, in addition to those of renewable energy sources and the pharmaceutical sector, which were affected by the increase in financing costs in their expansion plans and the slower growth in demand of health-related products, respectively.

- **International debt markets showed an upward trend in asset performance for most of 2023, which led them to reach their highest levels in recent years in October.** This trend began to reverse in the last quarter, with the prospect of a monetary policy turnaround. Interest rates on Spanish government debt gradually increased their yields, ending the third quarter at around 3.5% (or somewhat higher at times)[52] in most terms of the curve, resulting in a virtually flat rate structure. Subsequently, there were deeper cuts in the longer terms, such that 10-year interest rates ended the year at 3%, far below the level at the beginning of the year (around 3.5%). The public bond yields of all the European economies[53] followed a similar trend and ended 2023 at lower values than those at which they had started the year at the longest terms of the curve. In the 10-year term, declines ranged from 53 b.p. in Germany to 151 b.p. in Greece (around 70 b.p. on average). At year-end, 10-year debt yields stood at around 2% in Germany, while in the Netherlands and Ireland they remained below 2.5%. In France, Finland, Belgium, Austria and Portugal they remained

[50] In the same period, the PER ratio of the US S&P 500 stock index grew by 19.4 times, whereas that of the European Eurostoxx 50 decreased by 12.3 times.

[51] Inditex grew by 58.6% in 2023.

[52] 10-year rates reached 4% at the end of September and start of October, coinciding with the ECB's last rate hike.

[53] In the case of the United States, 10-year rates barely varied, ending the year at 3.87%, although during the year they reached 5%.

below 3%, the value reached in Spain, which was exceeded in Greece and stood at nearly 3.75% in Italy.

- **Corporate debt yields followed a trend similar to those of public debt, although the intensity of the gains was more significant and the declines were more moderate.** The highest increases were observed in the medium and long terms of the curve, which had been most benefited by the ECB's asset purchases. The declines were more moderate throughout the curve and were concentrated mainly in assets with higher credit quality. This type of assets has the widest dispersion of its yields, observing a certain heterogeneity in spreads on government bonds, which varies in accordance with their terms, rating and degree of subordination. Throughout 2023, the normalisation of interest rates de-emphasised strategies related to the search for yield phenomenon and gave rise to certain adjustments in prices in many risk assets. However, the prospect that the situation will be partially reversed in the following months could imply a certain reactivation of these strategies.
- **The market risk of debt assets has moderated with the finalisation of the monetary policy tightening process.** However, episodes of asset price realignments cannot be ruled out in the event of changes in agents' expectations. For this reason, this risk remains important for high-yield corporate debt with worse credit rating and subordinated debt. Furthermore, companies with a weaker financial structure (especially SMEs) and higher leverage could be more affected by the increase in financial costs and their extension over time, especially in a scenario of economic slowdown. A similar situation could occur, in general, for all the most indebted agents, including the most vulnerable economies, with higher debt levels and major fiscal imbalances, since the increase in interest rates has given rise to a significant rise in debt service and could imply a substantial tightening of conditions for accessing new financing. Based on the foregoing, it is worth reiterating the potential effects of a foreseeable increase in the risk premiums demanded by the market in an adverse price and valuation scenario for some assets, a circumstance which is more relevant in some fund portfolios – especially fixed income –, which at times are exposed to illiquid, complex assets with credit ratings below investment grade.

Credit risk: yellow

- **The risk premiums of both the public and private sector showed slight declines in the first six months, which extended into the second half of the year.** The Spanish risk premium – measured as the difference between Spanish and German 10-year public debt – remained stable throughout the year, with a slight decrease in the annual balance sheet, from 109 b.p. to 97 b.p. (Figure 11).
- **The risk premiums of private sector entities recorded somewhat more intense declines, which were concentrated in non-financial companies.** Despite the increase in corporate financing costs, the prospect that these will start to moderate on the back of better-than-expected economic developments and good business results allowed the average CDSs of non-financial companies to decrease to 53 b.p. (29 b.p. less than at the start of the year). In the case of CDSs of financial institutions, their average also decreased significantly in the second half of the year to 85 b.p. (19 b.p. less than at the start of the year), once the uncertainties surrounding the financial sector and spurred by the improvement in its margins and good NPL performance were overcome.
- **The credit ratings of Spanish private issuers barely experienced significant changes in the third quarter of 2023, maintaining most Spanish debt at high quality levels.** Thus, in September 90.1% of Spanish debt was grouped under the investment grade

category, a proportion slightly superior to that of March (89.7%) and similar levels to those at 2022 year-end. Furthermore, the higher credit quality of financial sector debt compared to non-financial companies continues to stand out (91.6% of the outstanding debt balance of the former is investment grade compared to 82.5% of the latter). In financial institutions, the percentage of high-quality debt increased slightly in the third quarter of the year (two-tenths), while in non-financial companies the increase was more significant[54] (1.2 p.p.), which is explained to a certain extent by the deleveraging process carried out among the latter and which has enabled them to address the increase in financial costs in better conditions.

- **The financing of the non-financial sectors of the economy[55] accelerated the declines in the second half of the year, falling to 2.7% year-on-year in November.** This trend is explained by the deterioration in financing to both households and, to a greater extent, to financial companies. Financing for non-financial companies declined progressively during the year to a negative rate of 3.3% in November, the sharpest decline since 2015. This decline was caused by both the decrease in credit financing (-4.9%), which also recorded its sharpest decline since 2015, and the issuance of debt securities (-4.8%), although the latter has slowed its declines in recent months. Financing to households also declined (-1.9%), since the growth in consumer credit (4.3%) was not enough to offset the fall in loans for the acquisition of housing units (-3.2%).

- **The evolution in the credit ratings of Spanish issuers and other financial indicators still do not reflect significant changes in credit risk.** Even so, certain circumstances that could give rise to changes in the coming months must be considered. On the one hand, the decrease of the amounts reinvested in ECB debt purchase maturity,[56] which will be progressively reduced until disappearing at the end of 2024, which may affect the size of the risk premiums of all euro area issuers and, on the other, the possibility that a certain degree of fragmentation among the issuers may reappear in accordance with their credit ratings, which would affect high yield issuers to a larger extent.

  Furthermore, as mentioned in earlier versions of this Note, it should be noted that the ratings and risk premiums analysed correspond mainly to large or medium-sized companies, which have greater financial capacity to address a fall in economic activity. Thus, the economic slowdown scenario and the maintenance of interest rates at relatively high levels could affect the ability to meet debts of smaller companies such as SMEs, many of which have not yet fully recovered from the pandemic. For this reason, growth in credit risk in the coming months cannot be ruled out.[57]

Liquidity, financing and fragmentation risk: yellow

- **Fixed income issues of the private sector registered with the CNMV in the second half of 2023 reached €9.20 billion, 43.5% down on the same six-month period in 2022.** This decline was caused by the decrease in covered and territorial bond issues, which was

[54] Since the COVID-19 crisis, the proportion of investment grade debt decreased from 90% of the total outstanding debt balance in March 2020 to 79.6% in September 2022. Recovery from the deterioration in the quality of this type of debt began in the last quarter of 2022, when this proportion exceeded 80%.

[55] Source: *Economic Indicators* of the Bank of Spain.

[56] In July 2023, the ECB completed the reinvestment of the maturities of the debt acquired under its APP debt purchase programme. Furthermore, this institution has indicated that it intends to continue normalising the Eurosystem's balance sheet, due to which it expects to reduce the Pandemic Emergency Purchase Programme (PEPP) portfolio by €7.50 billion per month on average (in the first half of the year it intends to continue reinvesting the principal of the maturities of the securities acquired under this programme), thereby finalising maturity reinvestments by the end of 2024.

[57] Non-performing resident private credit stood at 3.6% in October, compared to the previous 3.56%, accumulating three consecutive months of increases.

not offset, as on other occasions, by the increased issuance activity of securitisation bonds. Thus, issues in the year as a whole reached €45.45 billion,[58] down 23% on 2022 (€59.07 billion). Furthermore, admissions to trading of corporate commercial paper amounted to €10.51 billion,[59] 59.5% less year-on-year,[60] so the trend of relocating issues to Spain appears to have halted. Furthermore, fixed income issues made by Spanish issuers abroad totalled €55.60 billion in the second half of the year (data up to November), up 13.1% due to the growth of issues in the medium and long term, which offset the slight fall in issues of promissory notes. Over the year as a whole, issues abroad amounted to €130.81 billion, up 28%, due mainly to the growth in long-term issues (up 37.8%) and, to a lesser extent, to the increase in issues of promissory notes (up 20%).

In 2023 as a whole, the debt issues of Spanish issuers[61] made in domestic or foreign markets amounted to €217.13 billion, down 3.8% on 2022. Of this amount, €109.67 billion were long-term issues (up 1.2%) and €107.45 billion were issues of promissory notes (down 8.4%). The maintenance of issuing activity (it should be recalled that one month of foreign issue data is missing) could be explained: i) partially by companies' financing needs to address upcoming maturities in the coming months;[62] ii) by the anticipation of some issues in view of the possibility, during most of last year, that financing cost could continue to rise, particularly at times of uncertainty surrounding economic activity; and, lastly, iii) in the case of financial institutions, due to the need to replace part of the financing previously obtained from the ECB under favourable conditions.

In primary share markets, the unattractive valuations of some companies[63] and uncertainties surrounding economic performance, in addition to the high levels of demand for information and transparency, have reduced the interest of many companies in going public, in a context where there are financing alternatives and competitive purchase offers from private capital funds. Thus, in 2023 there were no admissions to listing, although a recovery is expected in 2024. Furthermore, the alternative market BME Growth maintained some dynamism with the incorporation of nine new companies[64] (six expanding companies and three REITs).

- **The financing capacity of the Spanish economy reached €5.20 billion in October,[65] higher than the €2.20 billion recorded in the same period of 2022.** This performance was a consequence of the surplus of €3.80 billion reached by the current account balance, supported by the positive contribution of the balance of goods and services on the back of the good performance of tourism (which reached a surplus of €6.20 billion),[66] which offset the €1.10 billion deficit of non-tourism goods and services.[67] Furthermore, primary and secondary income accumulated a deficit of €1.30 billion (similar to the €1.40 billion in 2022), while the capital account raised its surplus to €1.50 billion. The accumulated 12-month figure shows that financing capacity grew to €52.50 billion, higher than the

58 Issues made by the SAREB amounting to €9.54 billion were also registered with the CNMV, but classified as general government debt.

59 To this amount we must add the €15.16 billion admitted to the MARF, up 10% on 2023, which corresponded mainly to issues of promissory notes (€14.07 billion).

60 In previous months an increase in issues of corporate commercial paper was observed, which was partially attributed to the positive effect of the measures arising from Law 5/2021 – which releases issuers from the obligation to draw up a prospectus for issues of promissory notes maturing in less than 1 year – and others adopted by the CNMV to simplify and expedite issuance processes.

61 It includes issues of promissory notes admitted to trading in different markets.

62 The estimated amount of private sector debt maturities for 2024 exceeds €86 billion and is close to €83 billion for 2025.

63 The low market valuations can be explained, partially, by the increase in interest rates and by the unfavourable stock market performance of many previously listed companies.

64 In 2022, 15 new companies were incorporated (ten expanding companies and five REITs).

65 According the monthly advance of Balance of Payments data from the Bank of Spain.

66 Its highest level reached in the month of October. Income from tourism grew by 22% year-on-year, while payments grew at a rate of 15% year-on-year.

67 The non-tourism goods and services balance fell from the €2.40 billion reached in the same period of 2022.

€16.30 billion in the same period of 2022, due to the reduction in deficit of the non-tourism goods and services balance.

- **Household deposits fell by 0.9% year-on-year in November, while financial company deposits fell by 2.2%,** to €981.10 billion and €310.70 billion, respectively. The cumulative decline in the year reached €16.20 billion. The causes that would explain this decline would be the need to draw down part of the accumulated balance to cope with the rising cost of living[68] and financing,[69] early repayment of mortgage loans and credit facilities,[70] the transfer of resources to investment funds[71] and the acquisition of Treasury Bills[72] due to the low remuneration of deposits. Furthermore, a redistribution of funds from demand deposits to term deposits is observed, in search of the higher remuneration of the latter.[73]

- **Consolidated household and corporate debt decreased to 113.5% of GDP in the third quarter of 2023,[74] totalling €1.63 trillion, lower than the €1.67 trillion recorded one year earlier and its lowest level since March 2002.** Household debt decreased to 48% of GDP, while corporate debt decreased to 65.5%.[75] Furthermore, the financial wealth of households and non-financial companies reached nearly €2.80 trillion (194.9% of GDP), up 5.5% year-on-year, standing in net terms at €2.05 trillion (142.9% of GDP). In relation to GDP, financial wealth fell by 6 p.p. in the last financial year due to GDP growth, accumulating two years of consecutive falls.

- **Average daily trading in the continuous market fell sharply once again in the second half of 2023**, standing at €1.04 billion – the lowest volume in the last 20 years –, dragged down by low volatility securities, which discourage algorithmic and high-frequency trading, and high interest rate levels, which favour the demand for other assets, in addition to the activity of other BME competitor trading venues. The average daily trading figure was 7.9% less than in the same period of 2022 and is also below the average of 2023 as a whole[76] (€1.16 billion).

  Total trading of Spanish shares in the second half of 2023 stood at €281.84 billion, down 8.5% on the second half of the previous year and down 19.1% on the first half of the year. Of this amount, €128.50 billion were traded through BME (down 11.9% year-on-year) and the rest in non-BME trading venues.[77] The sharper decline in BME trading caused the market share of alternative venues to increase to 54.5% of total securities trading[78] in the last quarter of the year, reaching a new all-time high. In relation to the trading carried out in competitor venues, worth noting, in addition to the preponderance of Cboe, which is by far the most relevant platform, is the emergence of other trading venues such as Equiduct

68 See the household savings data described in the "Macroeconomic environment" section.

69 According to ECB data, the synthetic indicator of the cost of financing of new loans and credit facilities to companies stood at 5.23% in November, while that corresponding to new loans and credit facilities to households for the acquisition of housing units stood at 4.01%, both recording a significant increase during the year as a result of the effect of the rise in interest rates.

70 One-year Euribor stood at over 4% between June and November, exceeding the values reached in the same periods of 2022 in every month (even exceeding the year-on-year difference of 300 b.p. in some months).

71 Money market funds, fixed income funds and target return funds (whose portfolio is composed of public debt and fixed income assets) recorded substantial volumes of subscriptions throughout 2023.

72 According to Treasury data, the balance of Treasury Bills held by natural persons amounted to €22.89 billion at 2023 year-end, compared to the €1.83 billion recorded in the same period of 2022.

73 This trend had already been observed in companies since mid-2022, but was also observed in households in 2023.

74 Source: Financial Accounts of the Spanish Economy published by the Bank of Spain.

75 In the same period of 2022, these ratios stood at 53.7% and 73.5%, respectively.

76 Average trading in 2022, 2021 and 2020 stood at €1.39 billion, €1.45 billion and €1.65 billion, respectively.

77 Information calculated using data obtained from the financial information provider Bloomberg.

78 Total trading understood as that subject to non-discretionary market rules.

and Aquis, which jointly accounted for 6.4% of total Spanish securities trading in 2023. In 2023 as a whole, the market share of alternative trading venues stood at 53.7% (52% in 2022).[79]

Furthermore, Spanish shares traded through systematic internalisers recovered in 2023, becoming stabilised at around 6.5% of total trading. This percentage is 1 p.p. higher than that of 2022 and similar to that of 2021. This trend implies a certain reversal in the fulfilment of one of the objectives of the MiFID II regulation, which was to transfer part of the trading carried out under discretionary rules to trading venues that follow non-discretionary rules.

- **The Ibex 35 liquidity indicator (measured through the bid-ask spread size) remained at satisfactory levels in the second half of the year** and even improved slightly, favoured by low volatility levels. In the case of the 10-year sovereign bond, although its spread remains at very low levels in both absolute and relative terms, a slight upward skew was observed at the end of the second half of the year, associated with an increase in debt price volatility in the longest terms (see Figure 15).

- **Interest rate spreads between loans to Spanish companies and loans to companies in the euro area remained negative in the second half of the year, widening slightly for loans amounting to less than €1 million and for those of higher amounts.** In the first case, the spread increased from -28 b.p. in June to -36 b.p. at the end of the year and, in the second case, the spread decreased from -21 b.p. to -8 b.p. in the same time period. On the other hand, the Bank Lending Survey of the third quarter reflected that grant criteria and its conditions continued to tighten for the sixth consecutive quarter, both for loans for the acquisition of housing units and consumer loans, while in the case of financing for companies the criteria remained in similar values to those of the previous quarter. Furthermore, the demand for financing declined for the third consecutive quarter, in a context of increasing financial costs.

  Furthermore, the Code of good practices[80] for debtors at risk of vulnerability has been modified, raising the income threshold for accessing the conditions set out therein, in addition to modifying certain fees associated with mortgage loans.

Contagion risk: orange

- **The correlation between the daily yields of the different types of Spanish assets remained at relatively low levels during the second half of 2023, although it experienced a slight rebound in the last month of the year.** Thus, the average half-yearly value of the correlation stood at 0.29, even lower than the average values of the first half of the year (0.33), as a consequence of the disparate performance between the prices of fixed income assets and equity assets. From mid-November and coinciding with a progressive decline in interest rates, the correlation increased slightly: the median of correlations in December was 0.33 once again. The difference between the minimum and maximum values of these correlations, while remaining high, decreased in the second half of the year, due mainly to the increase in minimum values, which became positive at some points in September

[79] Other alternative sources of information – in particular, those provided by BME based on Liquidmetrix data – indicate a BME market share in the trading of Spanish securities of around 67.46% in 2023 (66.9% in 2022). The difference is explained by the trading volume at external trading venues, which is considerably lower in the information provided by Liquidmetrix.

[80] The Code of good banking practices entered into force on 1 January 2023 and introduced certain measures for making the payment of mortgages more flexible through the introduction, inter alia, of grace periods and rate cuts.

(values below -0.60 at the end of the first half of the year were observed). The maximum values continued to be similar to those of the first half of 2023 (between 0.60 and 0.80).[81]

- **The correlation between the yield of the 10-year Spanish sovereign bond and the other European sovereign bonds increased in the second half of the year, particularly with core countries.** Thus, the correlation between the yield of the Spanish sovereign bond and that of core European countries – the soundest countries in financial terms – increased gradually between July and December last year, from already high values of around 0.90, ending the second half of the year at 0.998 (see Figure 32). The correlation between the yield of the Spanish sovereign bond and that of peripheral countries was very similar, although it decreased in the middle of the second half of the year. Thus, at the end of the third quarter it reached a value of 0.94 (0.71 at the end of June), decreasing again in November to 0.71 and subsequently increasing again significantly, ending 2023 at 0.97.

[81] It should be noted that the probability of contagion increased with higher correlation levels and that these higher correlations complicate portfolio diversification.

Market risk: orange

Figure 3: Stock prices

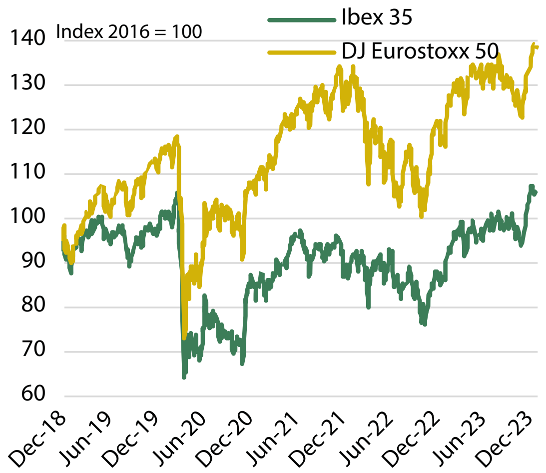
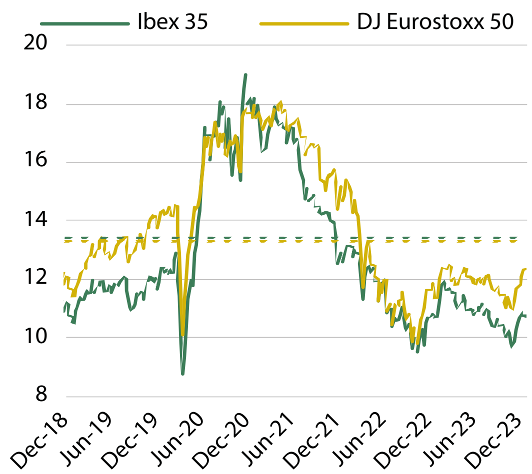


Figure 4: Price-earnings ratio (PER)



The dashed lines correspond to the average PER calculated since 2000.

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

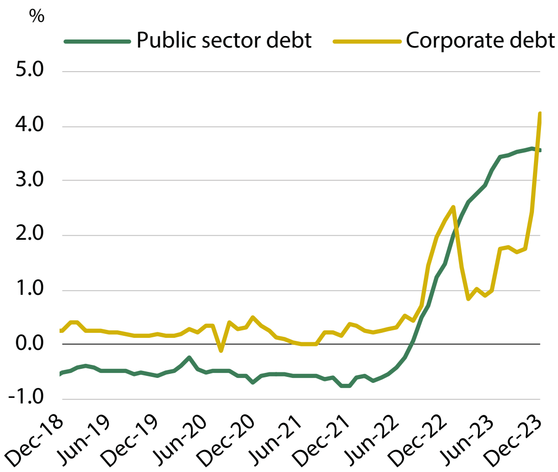


Figure 6: Long-term interest rates (10 years)

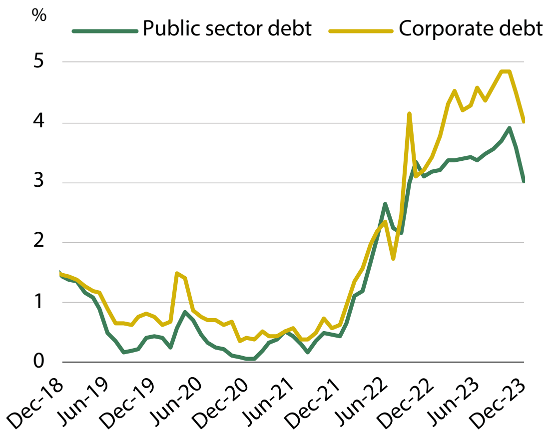
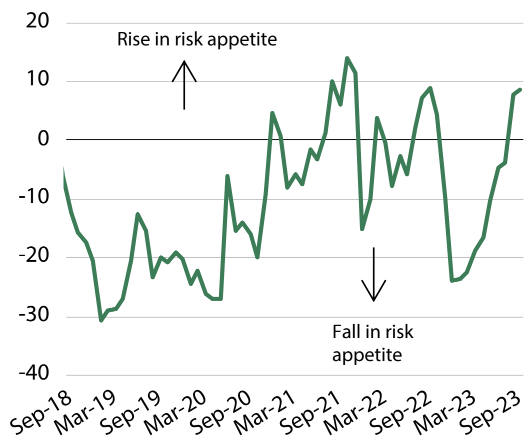


Figure 7: Oil price

Figure 8: Risk appetite (State Street)



Credit risk: yellow

Figure 9: Financing of the non-financial sector

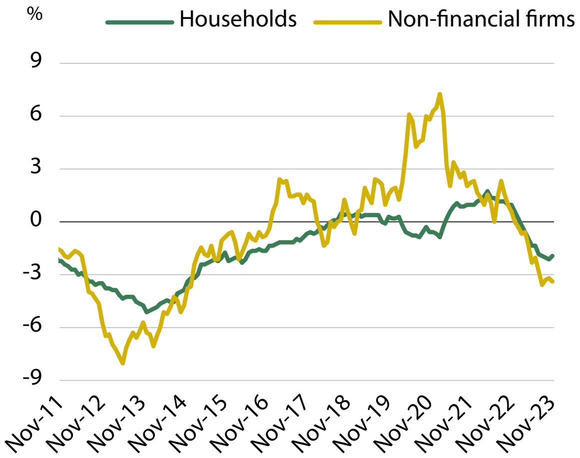


Figure 10: NPL (delinquency) ratio and unemployment rate

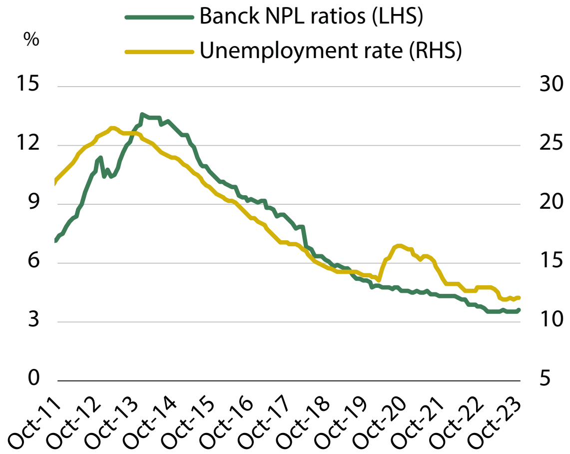


Figure 11: 10-year government debt risk premium (rate differential with Germany)

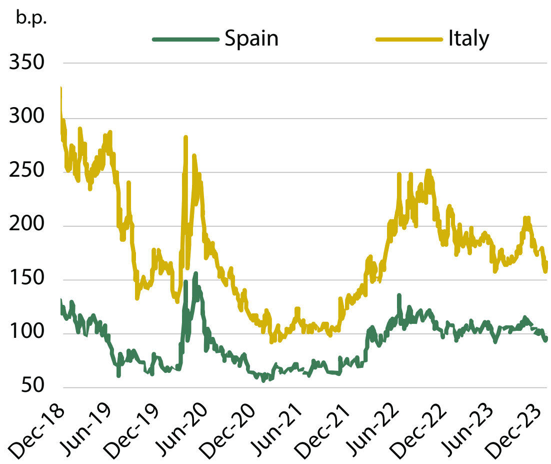


Figure 12: Private debt risk premium (5-year CDS)

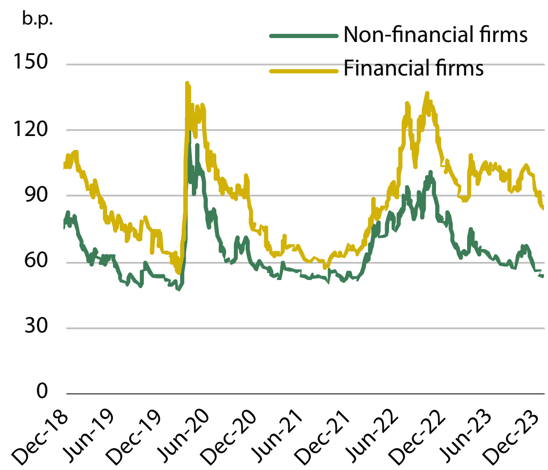


Figure 13: Housing prices (year-on-year change)

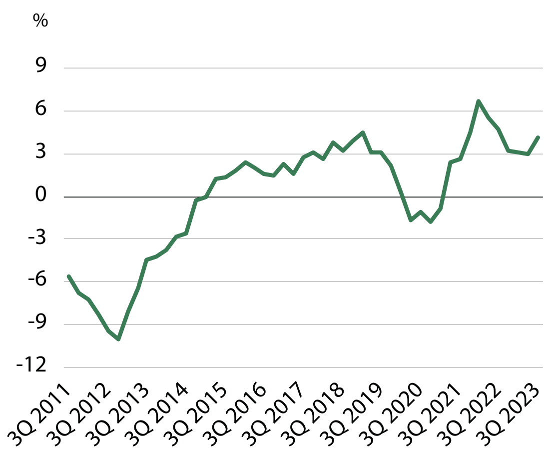
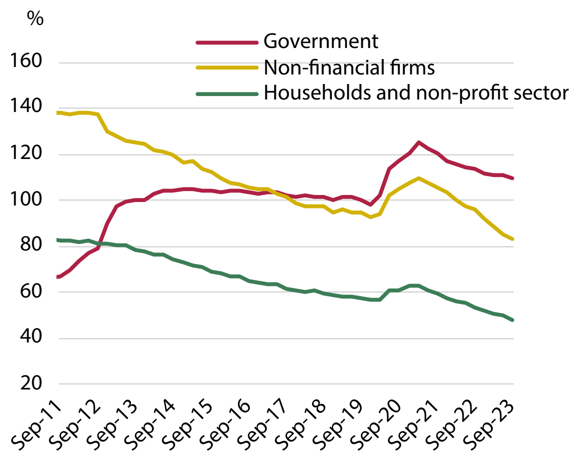
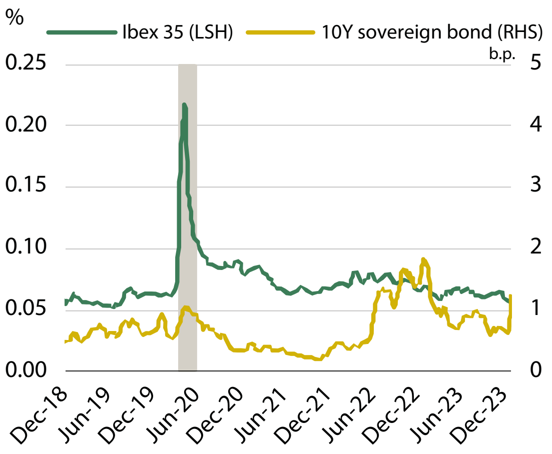


Figure 14: Indebtedness (% of GDP)



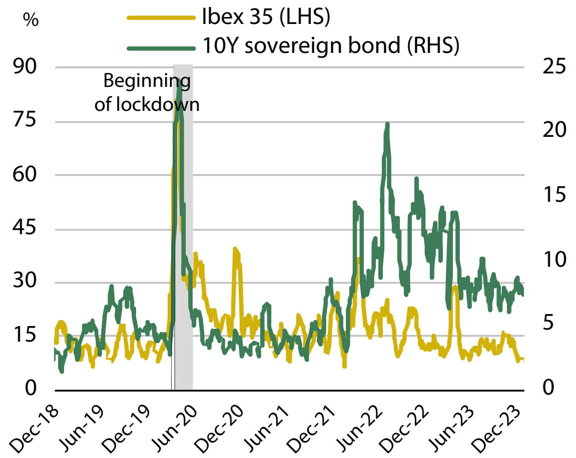
Liquidity, financing and fragmentation risk: yellow

Figure 15: Liquidity (bid-ask spread)



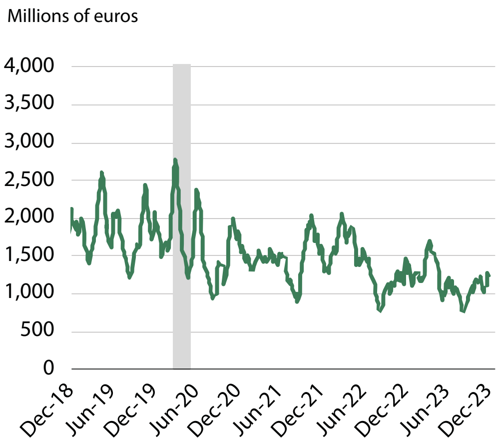
The shaded area corresponds to periods when short selling was banned.

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)

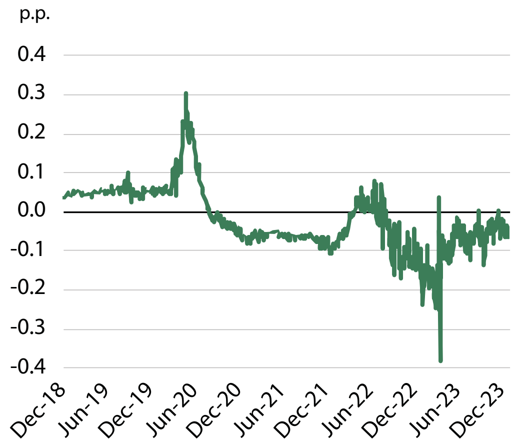


Figure 19: Spread (Spain-EMU) on corporate lending rates

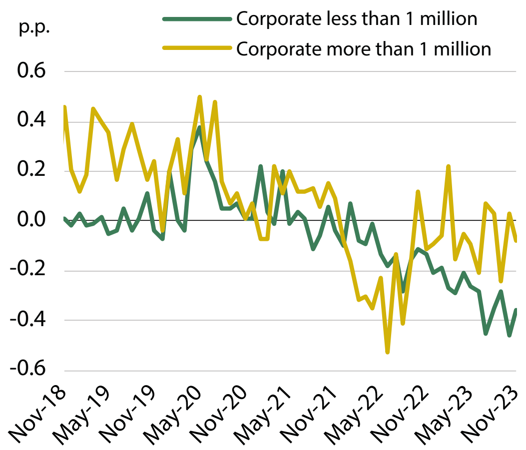
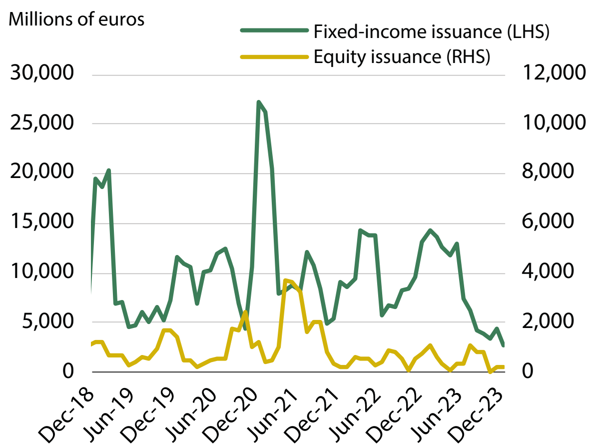


Figure 20: Issues (3-month moving average)



Macroeconomic risk: orange

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

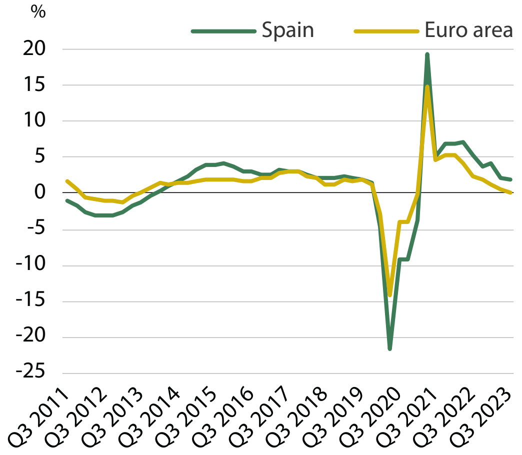


Figure 22: HCPI and underlying CPI (year-on-year change)

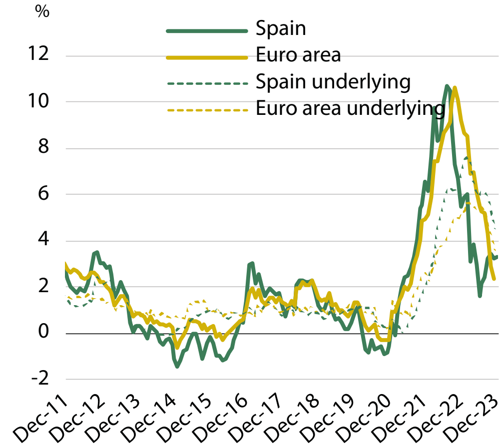


Figure 23: Employment (year-on-year change)

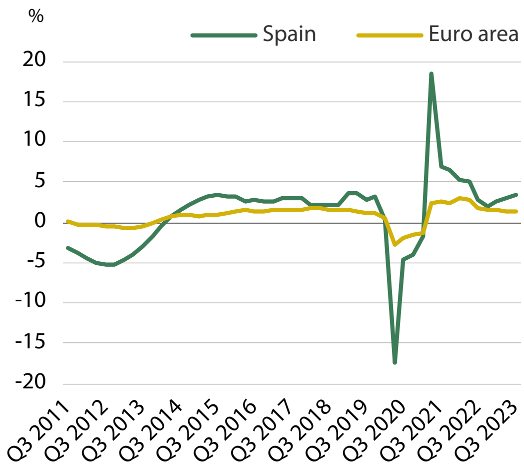
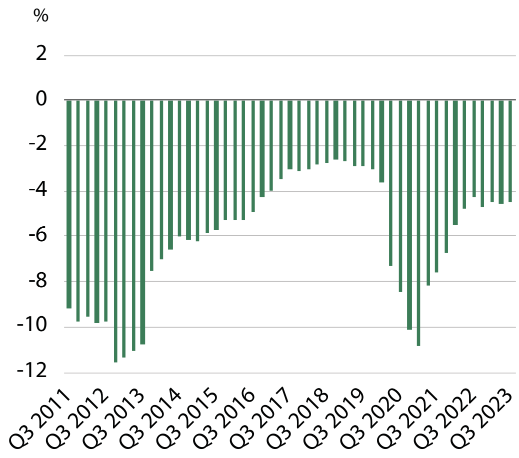


Figure 24: Public deficit (% of GDP)



Cumulative data for four quarters.

Figure 25: Exchange rates

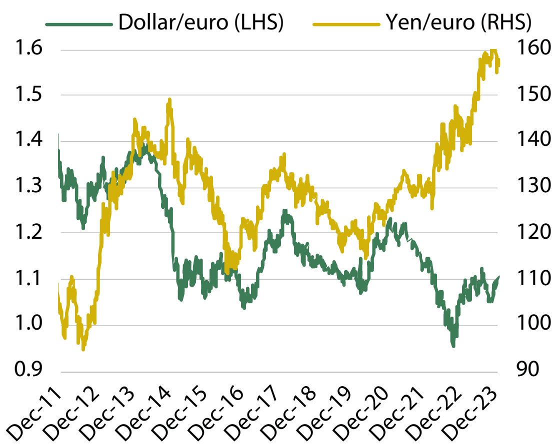
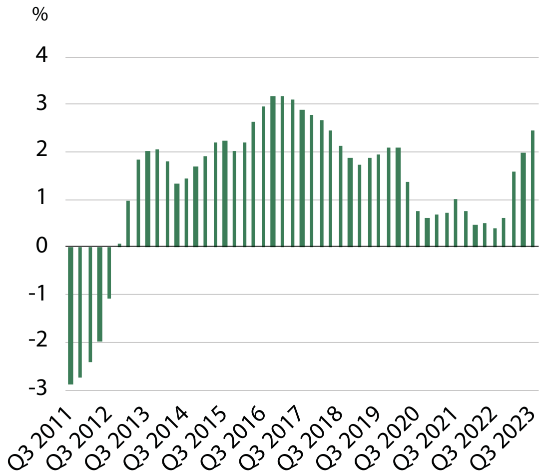


Figure 26: Current account balance (% of GDP)



Contagion risk: orange

Figure 27: Correlations among asset classes

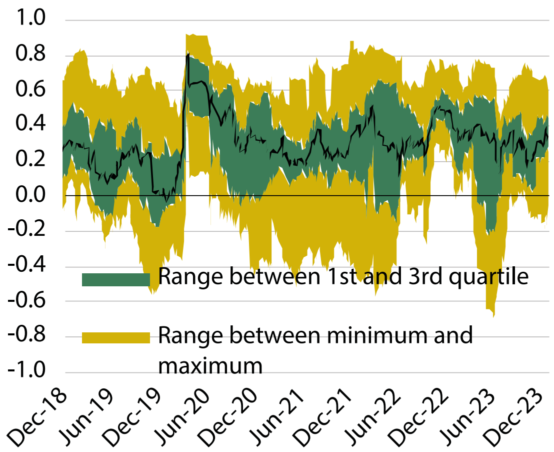
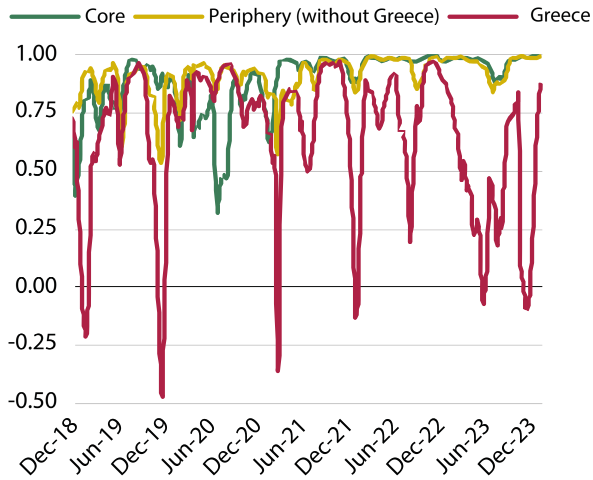
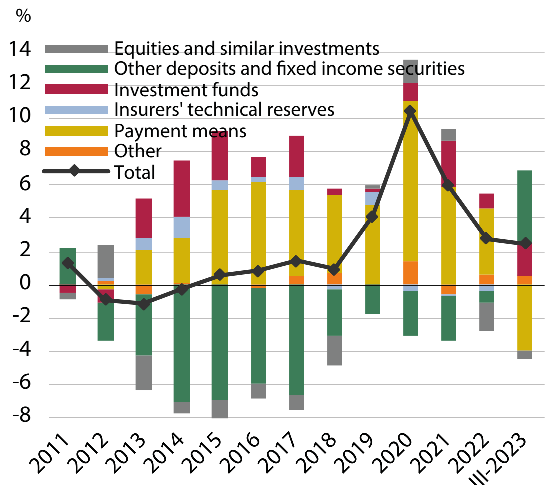


Figure 28: Correlation between the yield on 10-year Spanish bond and other European bonds



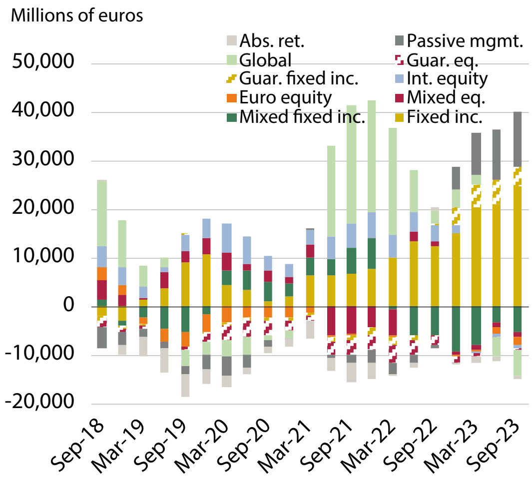
Investors

Figure 29: Households: net acquisition of financial assets (% of GDP)



Cumulative data for four quarters.

Figure 30: Net subscriptions to investment funds



Cumulative data for four quarters (millions of euros).

Figure 31: Households: savings (% disposable income)

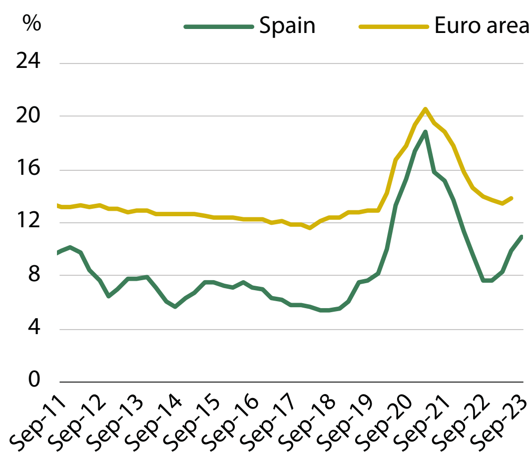
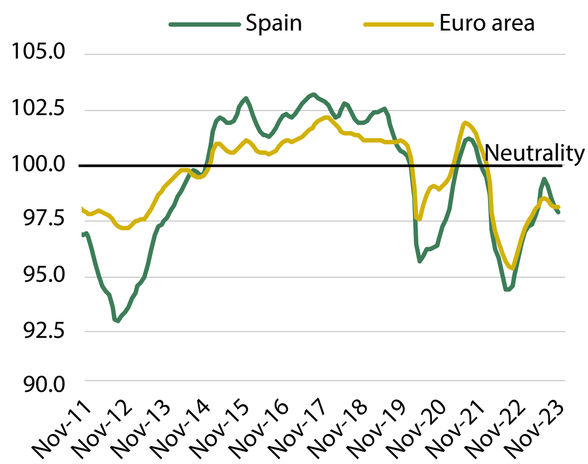


Figure 32: Consumer Confidence Index



Sustainable finance

Figure 33: CISs articles 8 and 9 (numbers)

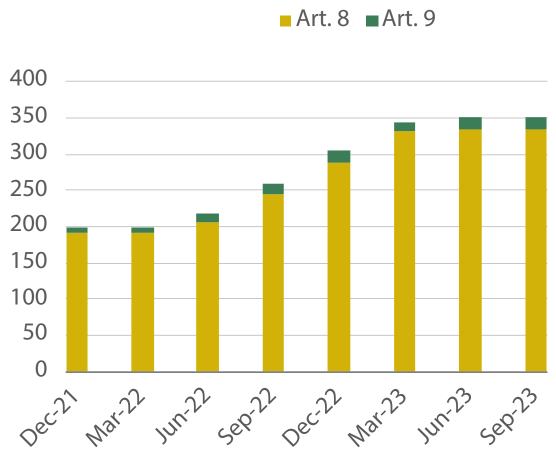
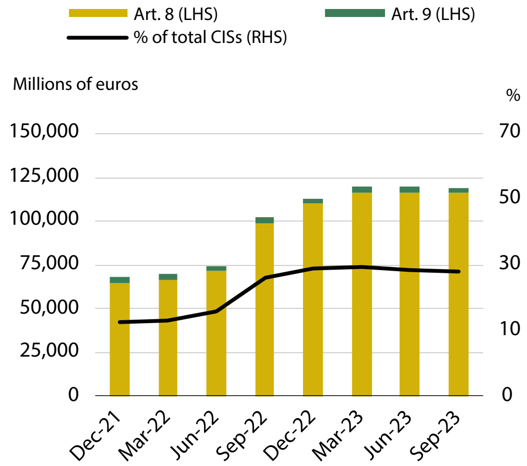


Figure 34: CISs articles 8 and 9 (assets)



According to the SFDR Regulation.

Figure 35: ESG debt issues of Spanish issuers (rate)

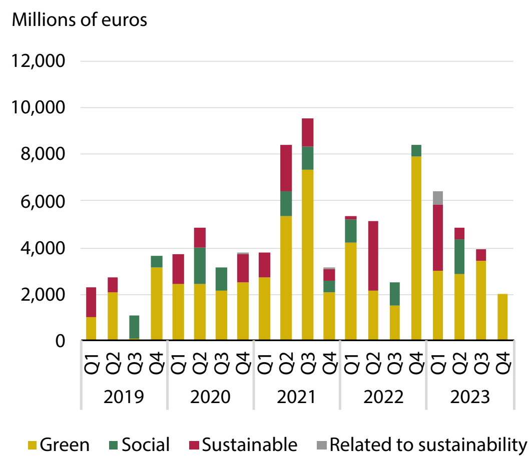


Figure 36: ESG debt issues of Spanish issuers (sector)

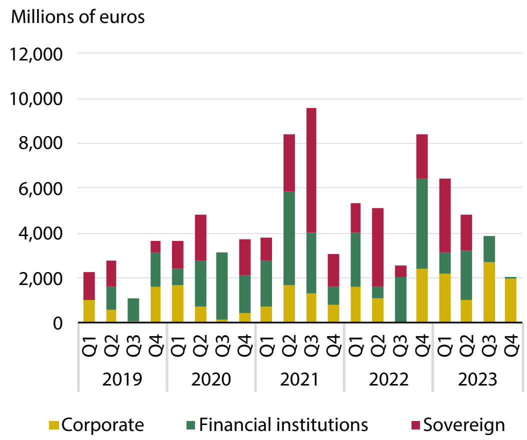
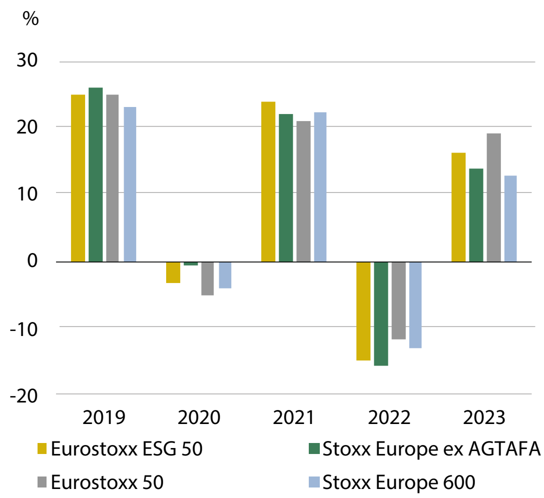


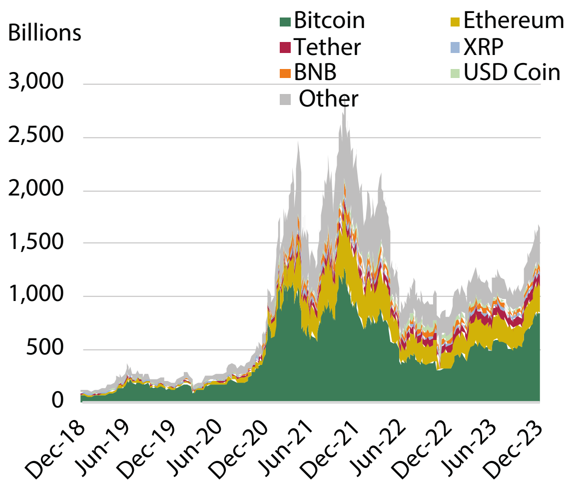
Figure 37: Coal price (EUR/tonne)

Figure 38: Yield of European ESG equity indices



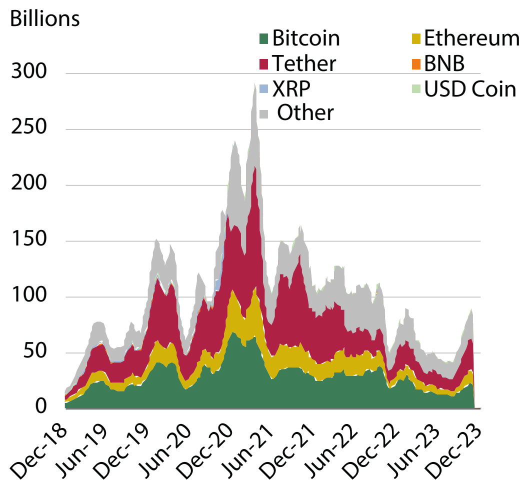
Crypto-assets

Figure 39: Crypto market capitalisation (US$)



Tether and USD Coin are stablecoins.

Figure 40: Crypto trading (US$)



Tether and USD Coin are stablecoins.

Figure 41: Non-stable crypto prices (US$)

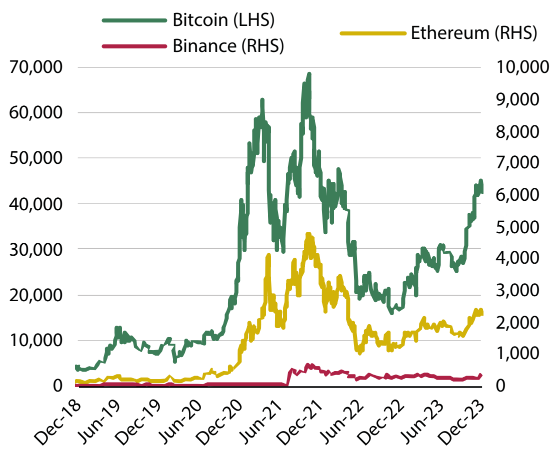


Figure 42: Bitcoin volatility

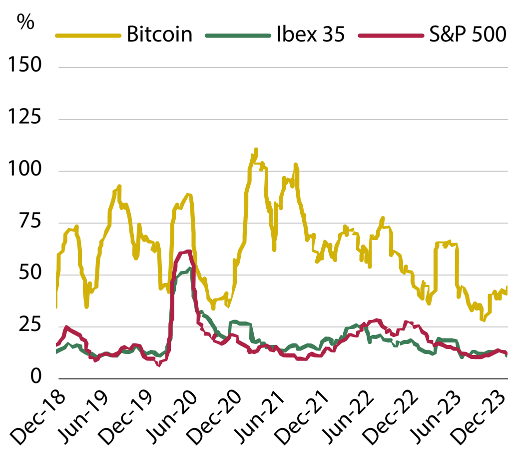
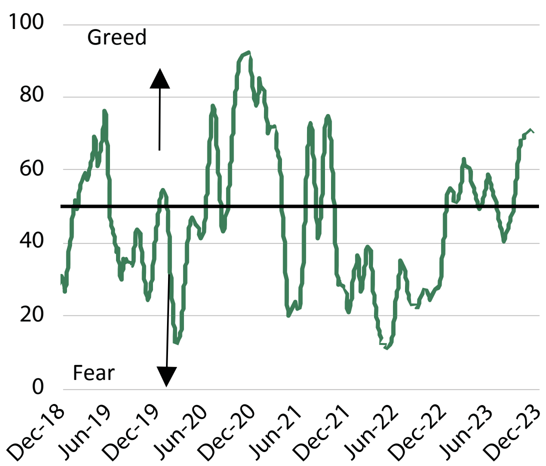
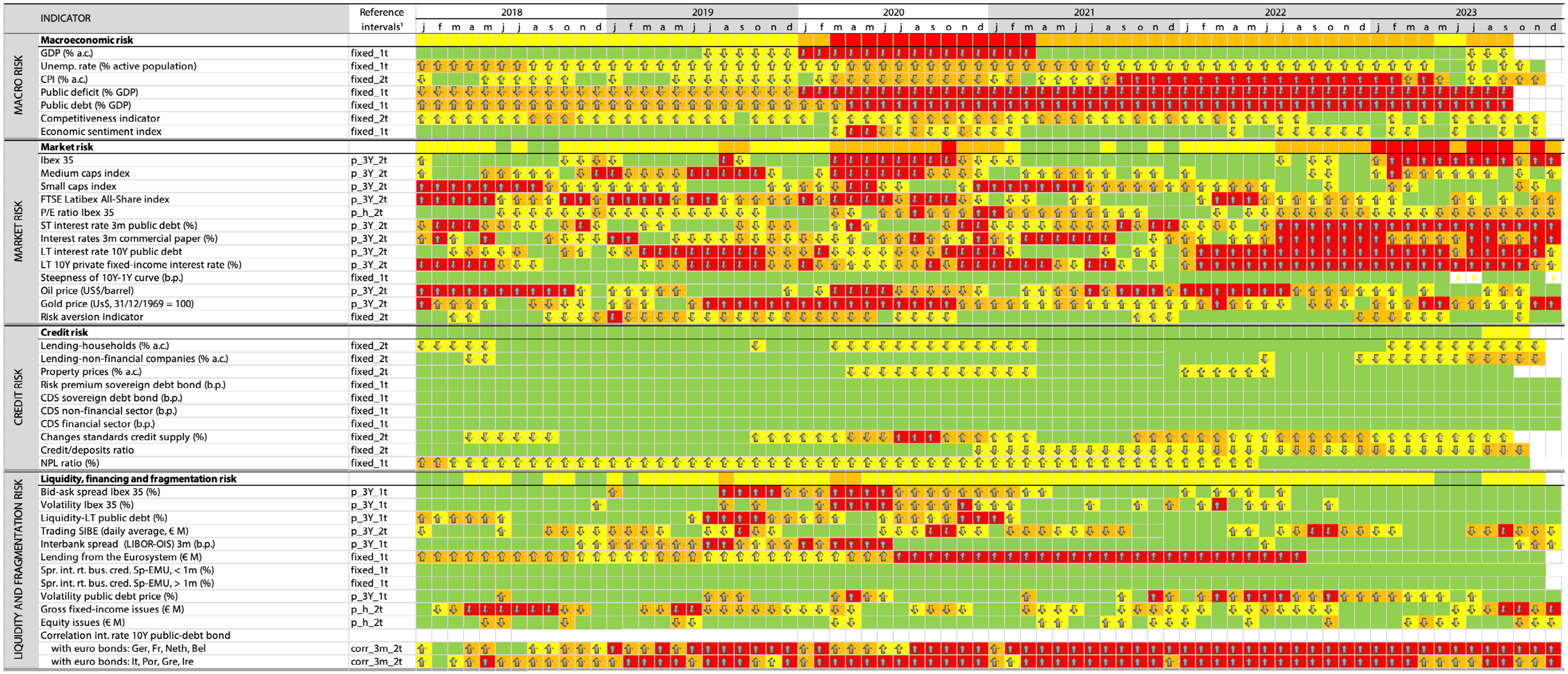


Figure 43: Bitcoin sentiment indicator (fear and greed index) (1-month moving average)



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

Sources of information: Most of the quantitative information used to define the indicators shown on the figures and heat maps of this Note are obtained from Refinitiv Datastream and Bloomberg. The following exceptions stand out: i) CIS data are obtained from the information available at the CNMV; ii) ESG issuance data is obtained from information from the Bank of Spain, the CNMV and Dealogic; iii) cryptocurrency capitalisation and trading indicators come from CoinMarketCap; and iv) the bitcoin sentiment indicator is obtained from Kaggle.

Spanish financial market stress index (Figure 1). The stress index provides a real-time measurement 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, with the subsequent aggregation taking into account the correlation between segments. In this way, 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) 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, who proposed 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 Document 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 certain 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 certain 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. Instead, it indicates a movement towards an extreme value (very high or very low) over 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 shown 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

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

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.

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 asset classes (Figure 27). The correlation pairs are calculated using daily data in 3-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 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 10-year Spanish bond and other European bonds (Figure 28). The correlation is calculated using daily data in 3-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.

Investors

- Consumer Confidence Index (CCI) (Figure 32). The Index is an indicator of household consumption and savings prospects resulting from their answers to questions related to their expected financial situation, their feelings about the overall economic situation, unemployment and savings capacity. A value above 100 indicates an increase in consumer confidence in relation to the future economic situation, due to which they are less likely to save and, consequently, more likely to increase their expenditure in the following 12 months. Values below 100 denote a pessimistic attitude towards the economic situation, which leads consumers to save more and consume less.

Sustainable finance

- Yield of European ESG equity indices (Figure 38). ESG equity indices include Eurostoxx 50 ESG and Stoxx Europe Sustainability ex AGTAFA. The first is based on the Eurostoxx 50 index, based on which certain exclusion criteria are applied and, additionally, 10% of the companies with the worst ESG rating are replaced by companies of the same sector with a higher ESG rating. The excluded companies are, for example, those that do not fulfil the United Nations Global Compact Principles, those that are involved in arms disputes or tobacco producers. The second index related to ESG criteria contains information of a variable number of companies from 17 European countries that explicitly exclude those that obtain income from alcohol (A), gambling (G), tobacco (T), armament (A), firearms (F) and adult entertainment (A).

Crypto-assets

- Bitcoin historical volatility (Figure 40). Annualised standard deviation of daily price variations in 90-day windows.

- Bitcoin sentiment indicator (greed and fear index)[83] (Figure 41). This Index is a metric that assesses the prevailing market sentiment. It is based on different factors such as volatility, transaction volume, social media sentiment and surveys. It is measured on a scale of 0 to 100, in which the low values are interpreted as excessively negative market perceptions (fear) and the high values are understood as excessively optimistic perceptions (greed).

[83] Kaggle. "Bitcoin & Fear and Greed".