CNMV
Comisión Nacional del Mercado de Valores

Financial Stability Note

No. 17 January 2021

Financial Stability Note

No. 17 January 2021

The Financial Stability Note is framed within the tasks that the CNMV carries out to monitor financial stability conditions in the areas it supervises. In particular, the Note assesses the stress level of Spanish securities markets during the last quarter, identifies changes in the level of different financial risks and identifies the major sources of risk.

The Spanish National Securities Market Commission (CNMV) distributes its reports and publications via the Internet at www.cnmv.es

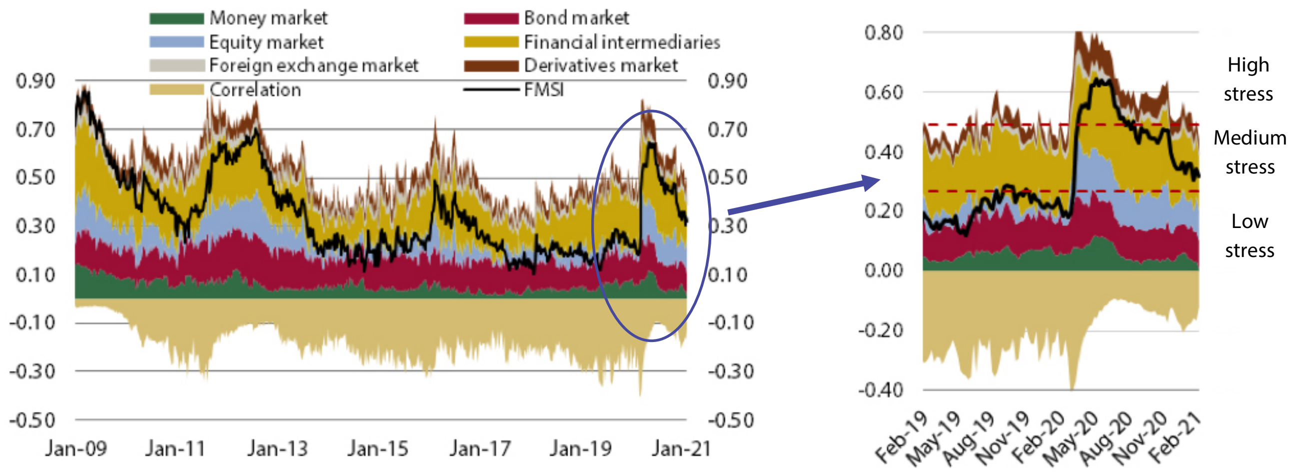
ISSN (digital edition): 25030-7827

Layout: Comisión Nacional del Mercado de Valores (CNMV)

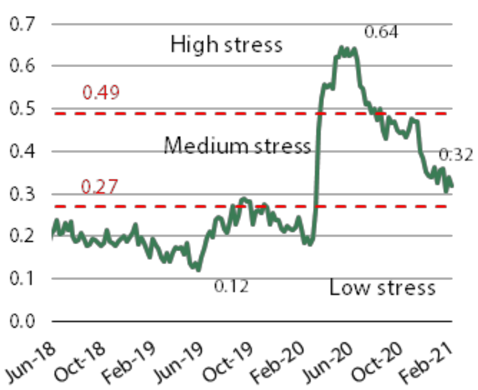
Summary

✓ Since the publication of the last Stability Note in November, **the stress indicator** for the Spanish financial markets has shown a downward trend, going from figures close to 0.50 to values slightly above 0.30 in the early days of February.[1] This level is located in the medium stress region, approaching the threshold that separates the medium from the low stress level (0.27). The fall was due to declines in the six segments of the financial system considered. All of them present stress levels of below 0.50, except for financial intermediaries (0.62), which, in spite of the circumstances, have also performed better recently thanks to the recovery of company share prices. Volatility indicators continue to see rallies that affect the total indicator and the correlation of the system remains at high levels, albeit within a slight downward trend.

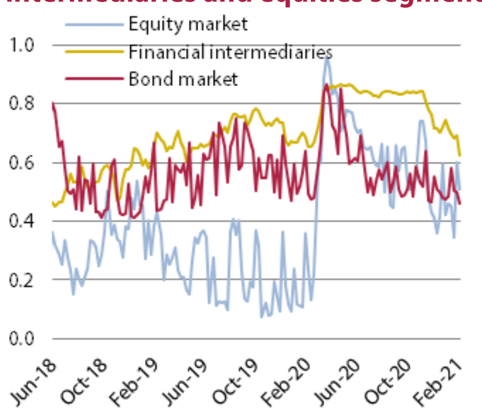
Stress indicator of the Spanish financial markets FIGURE 1



Total stress index



Indicators in the bonds, financial intermediaries and equities segment



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 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.

[1] The closing date of this note is 31 January, except for the stress indicator which includes 5 February and certain other specific data.

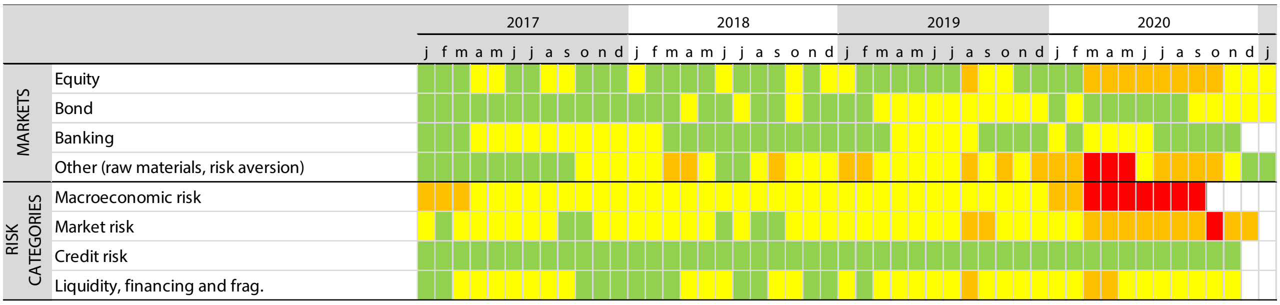
- ✓ **Macroeconomic trends in Spain** continue to reflect the severity of the coronavirus crisis. The movements in the different activity, employment and public finances indicators place this risk at the highest in the set of risks and sources of uncertainty analysed in this report. Thus, GDP dropped substantially in 2020 (11%), outstripping that of the euro area as a whole (6.8%), due to a higher weighting of activities that are relatively more affected by the crisis in Spain' s product composition. Labour market data indicate that 622,600 jobs were lost in 2020, which has raised the unemployment rate to 16.1% of the active population (13.8% in 2019). The inflation rate has been in negative territory for much of the year (-0.5% in December) and indicators for public sector finances suggest that the public deficit could have exceeded 10% of GDP last year, while public debt would have been over 116% of GDP. Indicators for the fourth quarter of 2020 pointed to a certain degree of improvement in activity and employment, but this was prior to the third wave of infections. Therefore, forecasts for economic recovery, which place GDP growth this year in a range of between 4.2% and 8.6%, remain subject to a high degree of uncertainty as the performance of economic activity depends not only on the short-term evolution of the pandemic but also on the measures adopted to contain it, as well as the response of the agents in this environment.

- ✓ Since the publication of our last note, there have been some changes in the performance of the **Spanish financial markets**, particularly in the equities segment, where gains have predominated. However, in the fixed income segment, the same patterns are observed: very low returns and risk premiums, consistent with the current monetary policy. The equity markets experienced a bullish period (especially in November), similar to other European stock exchanges, associated with the positive news about the efficacy of vaccines and the start of the vaccination programme, as well as the alleviation of some political uncertainties. In general, the price of the Ibex 35 index (which fell by 15.5% in 2020) shows a less positive relative performance compared to other comparable equity indices, since its composition partly reflects the higher weighting in productive activity in Spain of the sectors most adversely affected by the crisis (banking, tourism, leisure, hospitality, transport, etc.). However, in the most recent sessions some companies and sectors have made gains that have attenuated the heavy losses accumulated since March 2020. In the fixed income markets, most assets continue to offer very low returns, in part due to the effects of the European Central Bank (ECB) purchase programmes – although this trend can also be observed in assets that are not eligible for these programmes – and due to the shift in demand caused by these programmes and search for yield strategies.

- ✓ The main **financial risks** identified in this note are related to market risk in certain categories of fixed income assets, which could see higher risk premiums (and, therefore, lower prices) if any trigger emerges. This would be the case, for example, of a fresh episode of volatility in the financial markets giving rise to a generalised increase in risk premiums or, more specifically, to a deterioration in the perception of risk of a particular issuer or a sector. This risk is relevant not only for the issuer, due to the consequent increase in the cost of its funding, but also for investors with exposure to these assets, who may be affected by the market risk and also by the liquidity risk that it may entail. In this context, one of the CNMV' s most important tasks is the continuous assessment of the exposure of investment funds to potentially less liquid assets of poorer credit quality. Lastly, the performance of credit risk indicators (risk premiums and credit ratings) do not point to a significant deterioration in this area, although caution is advised in this assessment since these indicators do not factor in the performance of smaller companies, which have generally been more affected by the crisis while at the same time they are not rated by the agencies.

- ✓ The **sources of risk** that may ultimately having an impact on financial stability in the current context are related, above all, i) to the increase in non-face-to-face activities and all that this entails in relation to cybersecurity and the increase in activity of individual investors, and ii) to the implications of the current context of low interest rates, which, while containing funding costs, prolongs and intensifies yield seeking strategies and the indebtedness of agents, in addition to harming the development of some business models (banking, insurance, pension funds or certain types of investment funds). Sources of political uncertainty from abroad (Brexit and the change in the US administration) have diminished notably, although those of a domestic nature remain. Lastly, we would mention the performance of cryptocurrencies, which have marked significant gains in recent months, pointing out that their performance does not currently represent a significant risk for financial stability, but it could raise concerns related to investor protection due to aspects such as their high risk, complexity, illiquidity and lack of transparency, or the absence of a regulatory framework.

Heat map: summary by markets and risk categories[1] FIGURE 2



Source: CNMV. See article Cambón, M.I. (2015). "Identification of vulnerabilities in the Spanish financial system: an application of heat maps". *CNMV Bulletin*, Quarter I, pp. 109-121.
1 Data until 31 January.

Sources of risk

Macroeconomic environment

- According to the information provided by the National Institute of Statistics (INE), in the last quarter of 2020 the GDP of the Spanish economy grew by 0.4% compared to the previous quarter, which places the year-on-year rate in December at -9.1% (-11.0% if the average of the 4 quarters of the year is calculated). In the euro area, the quarterly and year-on-year variation in GDP in the fourth quarter was -0.7% and -5.1% respectively (see Figure 21). The quarterly data for activity in Spain show that this small increase was due to household consumption, which grew by 2.9% compared to the previous quarter (-8.4% year-on-year), and public spending, which rose by 4.0% between October and December (7.0% year-on-year). In contrast, investment (gross capital formation) contracted by 6.2% in the last quarter of 2020 to close the year with a decrease of 14.3%.

  The forecasts of the main institutions for 2021 and 2022 are, as in recent quarters, subject to a high level of uncertainty deriving from the duration and effects of the outbreak that followed the Christmas period and also due to the reach of the vaccination programme, hampered by the logistical and production problems that are emerging, and its effectiveness, due to new variants. Thus, estimates imply a recovery of between 4.2% and 8.6% in GDP. In its macroeconomic projections for the month of December the Bank of Spain envisages that, depending on the short-term evolution of the pandemic, the measures to contain it and the response of agents, GDP could grow by 4.2%, 6.8% or 8.6% this year (in the adverse, baseline and moderate scenarios, respectively). These forecasts are substantially worse than those made in the September report, which set out a recovery of between 10.5% and 12.6%. In 2022, economic activity would be on track to rise between 3.9% and 4.8%.

  The International Monetary Fund (IMF) published its forecasts at the end of January taking as a reference in its baseline scenario a situation in which the vaccine will be widely available in developed countries and some emerging economies in the summer of 2021, reaching most other nations throughout 2022. The fact that the vaccine became accessible slightly earlier than planned and a better than expected recovery in most of the world's economies in the second half of 2020, led to a generalised upward revision of expected growth in 2021. This organisation estimates that the global economy will grow by 5.5% this year (vs 5.2% previously), and by 4.2% in 2022. In the specific case of the euro area, however, estimates have been revised downwards due the scale of the new infections and the possibility of further lockdowns. Thus, growth of 4.2% is forecast for this year, 1 percentage point (pp) lower than the estimate for October, while for Spain the revision was 1.3 pp, so forecast growth stands at 5.9%. In 2022, Spain would be set to see growth of 4.7% compared to the euro area average of 3.6%.

- The impact of COVID-19 on the labour market in 2020 led to the destruction of 622,600 jobs[2] during the year, which raised the unemployment rate to 16.1% of the active workforce at the end of the year (15.5% annual average), compared to 13.8% at the end of 2019. In the fourth quarter, however, the trend was positive, with 167,400 more people employed than at the end of September, standing at 19.34 million, and 3,100 fewer people unemployed. Thus, the creation of 737,100 jobs in the second half of the year made it possible to recover around 55% of those lost in the first 6 months. As

[2] Data from the EPA (Labour Force Survey).

mentioned in previous reports, workers subject to temporary layoff measures (ERTE) are considered to be employed,[3] therefore the figures presented do not include this group.[4] Thus, at the end of 2020, this figure was 755,613, which reflects some degree of stabilisation since September. Practically one third of this number corresponded to workers in the hospitality sector, 30% of the total affiliated workforce in this sector. Compared to the worst moments of the crisis, at the end of April, the number of employees to be laid off temporarily (on the ERTE programme) has decreased by 2.86 million.

In regard to affiliation to the Social Security system, records for the month of December showed a slight increase of 26,432 (seasonally adjusted), to reach over 19 million people, which extends the positive trend of the last seven months, although the growth rate is much slower. Despite this increase, the number of contributors to the system fell by 360,452 over the year, representing a 1.9% decrease compared to year-end 2019. Preliminary data for the month of January appear to reflect a discontinuation of this positive trend that began in May, with a drop of 218,953 in the number of contributors, 1.1% less than at the end of December. The Bank of Spain's forecasts for the year-end 2021 indicate an unemployment rate, depending on the different scenarios, of between 17.1% and 20.5%, values similar to the forecasts made in September, except for those corresponding to the most adverse scenario, which were not contemplated in the previous report.

- The inflation indicator for December reflects a 0.2% increase in prices during the month, which pushes up the year-on-year price growth rate, although it remains in negative territory, at -0.5% (-0.8% in October and November). The main drivers of this rise were housing (due to higher electricity prices) and transportation. In both cases, the variation was negative, but of a smaller scale. In a comparison with the euro area, harmonised CPI data for December reflect the downward trend in Spain's negative differential since July (1.1 pp), which was 0.3 pp at the year-end. In relation to the underlying inflation rate, which excludes the most volatile elements (energy and fresh food), the data show a gradual decrease from July onwards, after having remained at around 1% in the first half of the year, to stand at 0.1% in December. In January 2021, preliminary data reflect a monthly increase in the CPI of 0.1%, which caused a significant rise in the year-on-year figure, to 0.6% (in January 2020, prices contracted by 1%). This performance was mainly the consequence of the increase in electricity and food and non-alcoholic beverages prices.

- The information obtained from the Ministry of Finance in relation to public sector finances reflects an increase in the deficit registered up to November 2020 of almost €68 billion compared to the same period in 2019, reaching €87.60 billion,[5] or 7.82% of GDP. This robust increase was due to the drop in income, especially tax income, and the increase in expenses deriving from the health emergency.[6] Looking at the end of 2020, the Bank of Spain's forecasts place the public deficit between 10.3% and 10.9% of GDP, while the IMF's calculations point to a higher figure, specifically 11.7%, albeit revised

[3] According to Eurostat and International Labor Organization (ILO) methodology.

[4] The layoff programmes (ERTE) have been extended until 31 May this year.

[5] These data correspond to the combined deficit of the central government, the autonomous regional governments and the social security system. Therefore, they do not include the balance of local authorities or the amount of aid to financial institutions. This last amount, however, is increasingly lower and in 2020 can be considered insignificant, since it is close to €1 million.

[6] Between January and November, central government revenues fell by 12.7% overall, thereby moderating the fall compared to previous months (in September the decrease was 14%). Government expenditure, on the other hand, increased in this same period by 19.2%, almost 87% of this corresponding to expenses derived from the pandemic in the form of transfers made to the social security office and autonomous regions.

downwards by five tenths of a point with respect to the previous estimate. Meanwhile, public debt, which some previous estimates placed above 120% at the end of 2020, could be below this threshold: the latest Bank of Spain forecasts envisage a level of between 116.1% and 117.8% of GDP (depending on the scenario contemplated), while IMF forecasts show a debt level of 118.2%, almost 5 pp below the value put forward in its October report. The deficit is expected to be reduced in 2021, although it would still be much higher than in previous years, with a value of between 6.7% and 8.2% of GDP, according to different organisations.

- In regard to households' financial decisions, data from the Financial Accounts for the third quarter of 2020 were also conditioned by the effects of the pandemic. The most obvious consequence was the increase in the savings rate, especially during the second quarter of the year,[7] when the effects and uncertainty deriving from the coronavirus restrictions were greater, reflecting an increase in "precautionary savings", which also occurred in the middle years of the financial crisis that started in 2008. Thus, at the end of September, savings of Spanish households stood at 12.7% of gross disposable income in accumulated 1 year data (11.2% in the second quarter and 6.3% at the end of 2019). Savings in the third quarter were lower than in the second, as is usual,[8] but much higher than in the same quarter of the previous year, which explains the increase in the total accumulated rate (see Figure 29). This high level of saving by Spanish households, although lower than the euro area average, was reflected in the acquisition of financial assets, which reached, in net terms, 6.6% of GDP (5.6% in the second quarter), the highest since 2006 (see Figure 27). By asset class, it can be observed that the divestment of term deposits and fixed income securities continued, accounting for 2.1% of GDP (accumulated data for the last 4 quarters), while the investment of a large part of savings in means of payment,[9] with inflows of funds in the first three quarters of the year of more than €60 billion (€98 billion in the previous year, 8.5% of GDP), was confirmed. Figures also show that another part, albeit much smaller, of household funds allocated to savings was used to acquire investment funds, specifically 0.9% of GDP.

  In the case of the latter asset, data available to the CNMV show that since the most critical moments of the pandemic (March and April 2020), retail investors have withdrawn a significant portion of their funds invested in relatively risky investments, such as equity funds (euro and international) or global funds – with redemptions of €1.90 billion between April and September – to invest in others offering lower risk, especially fixed income funds. The latter received more than €3.50 billion overall in the second and third quarters of the year. In the final part of the year, subscriptions to equity funds picked up again, which, together with the prolongation of investment in fixed income funds, is triggering a shift towards "pure" categories: solely fixed income or solely equity funds (euro and international).

Context of low interest rates

- Monetary policy in the euro area remains conditioned by the economic impact of the pandemic, which has prompted the ECB to adopt successive stimulus measures. These measures could be maintained or extended in the near future if the health and economic situation does not improve. Thus, after an initial stage in the first half of last year in

7 According to INE data, between April and June, Spanish households saved 31.1% of their gross disposable income, the highest value in the entire historical series.

8 In fact, this quarter is usually negative.

9 Cash and demand deposits.

which the ECB's measures were aimed at easing tensions on sovereign debt risk premiums, as well as facilitating the transmission of monetary policy, subsequent measures have been aimed at supporting the recovery of the economy, which has deteriorated to a greater extent than expected as a result of restrictive measures implemented to deal with the third wave of the pandemic. As a result, very favourable financing conditions still exist. The Governing Council of the ECB indicated in December that it expects policy rates to remain at or below current levels until a solid convergence of inflation prospects is observed to a level close to, but below, 2% in its projection horizon. It also increased the allocation to its PEPP stimulus programme[10] (Pandemic Emergency Purchase Programme) and its extension until March 2022 and, as indicated, improved financing conditions for financial institutions through TLTRO (targeted longer-term financing operations) to encourage lending and support economic recovery, leaving the door open to improving terms and conditions if necessary.

The high volume of sovereign debt purchases made by the monetary authority[11] put interest rates at even lower levels in all sections of the curve, reaching historical lows, for example, the yield on the 12-month Euribor[12] ended January at -0.505%, its lowest level ever. The US Federal Reserve, which has warned that the recovery is moderating, is following a similar policy aimed at boosting activity and job creation,[13] so its rates are also very likely to remain unchanged for a long period of time.

- In this context, the risks already mentioned in previous notes remain completely valid, and some may have intensified in recent months. On the one hand, the risks associated with maintaining search-for-yield strategies stand out, accentuating investors' propensity to invest in assets with higher expectations of return, given the lack of profitability and the increasing costs of maintaining liquidity positions and risk-free assets, with or without considering the increased risk associated with said strategies. These assets, in general, show high levels of volatility (equity, emerging market or cryptocurrency assets) and credit risk (they have worse credit ratings – subordinated debt and high yield assets), and are less liquid (subordinated debt and high yield assets, private equity funds or real estate assets). Additionally, the banking and financial sectors are finding it harder to increase their low profitability in a context of economic slowdown and growing business difficulties, delinquencies and rising risk. This scenario may lead some entities to take on greater risks. Lastly, the financial vulnerabilities of the most highly indebted agents or sectors should be noted, in some cases aggravated during the crisis. In contrast, some risk factors are moderating due to the decline in incentives for them to borrow in a context of economic recession and greater restrictions on access to credit, while the low cost of financing for indebted agents favours the control of delinquencies.

- In terms of the search for assets that offer higher returns (and greater risk), it is worth noting the strong increase in the visibility of cryptocurrencies as an investment alternative observed in recent months. The quoted prices of these assets, which show very high levels of volatility, have in some cases hit record highs, accompanied by a significant increase in advertising to attract investors. The quoted price of bitcoin grew fourfold in

[10] Up to a total of €1.85 trillion from the initial €750 billion, to which €600 billion were added on 4 June 2020.

[11] Euro area public debt accumulated by the ECB represents around 27% of its GDP.

[12] The 12-month Euribor yield turned negative for the first time in February 2016.

[13] The Federal Reserve is keeping its interest rates at between 0% and 0.25%, as well as maintaining its monthly asset purchases of US$120 billion. In addition, Chairman Jerome Powell is in favour of the rates remaining unchanged for at least 3 years.

2020 and its trading range was almost 600%.[14] At the moment, no relevant risks for financial stability are identified deriving from the performance of cryptocurrencies, but the associated risks must be taken into account regarding their consideration as an investment product. This is reflected in the statement published by the CNMV and the Bank of Spain[15] on 8 February.

Sources of political uncertainty

- Two of the main political uncertainties in the international arena, described in previous notes, have eased over the last few months. However, some new ones have appeared in their place. The former refer to the change in the US administration and the final outcome of Brexit.

- In the United States, political uncertainty was reduced after the elections with the appointment of Joe Biden as president in mid-January, but the political polarisation of the country remains unchanged, which generated tensions in the first weeks of the year. The course of some of the future economic and trade policies of the current administration could be a source of uncertainty in the markets since, despite having shown signs of a some return to multilateralism with the rejoining of the Paris Agreement and the cancellation of the United States' departure from the World Health Organization, a presidential decree has recently been signed to strengthen the Buy American Act, which appears to extend the protectionist stance of recent years.

  Further, doubts remain over the future trade relationship between the new US government and China. After the signing of the first phase of the trade agreement a year ago, negotiations for the next phases are still pending, which could ease the tension between the two powers and avoid further turmoil in the markets. Likewise, the future trade relationship between the United States and the European Union (EU) remains to be defined, and, if there is a chance of a rapprochement of positions that reduces bilateral tariffs due to the conflict between the two economies triggered by the government aid granted to Boeing and Airbus.

- In relation to Brexit, one of the main sources of uncertainty in Europe in recent years, the agreement reached at the end of December between the EU and the United Kingdom managed to avoid the main risk of a hard Brexit and therefore defused the potential threat to financial stability. In this regard, and in terms of market infrastructures, in the last months of the year a restructuring process was observed among EU trading venues to prepare for the exit of the United Kingdom. Several British entities opened trading venues in different locations in the EU (especially the Netherlands and France) and shifted a substantial part of their trading to them without difficulty. Thus, for the time being, the end of the transition period has not had a negative impact on the financial markets, although the effects should be monitored over a longer period. It remains to be seen how the effective operation of the new Trade and Cooperation Agreement more generally affects both economies.

- In Spain, the coordination and management of the health crisis by the different regional governments involved continues to be considered a potential source of political

[14] In January 2021, this cryptocurrency remained volatile, with a price increase of over 40% in the first 8 sessions, to fall sharply, by almost 25%, in the next 14.

[15] http://www.cnmv.es/portal/verDoc.axd?t={e14ce903-5161-4316-a480-eb1916b85084}

uncertainty. The vaccination process, which lost some of its impetus following the reduction in the supply of vaccines by the pharmaceutical companies, has lowered any expectations of achieving herd immunity in the short term. The severity of the third wave of COVID-19 has led to restrictions on the mobility of inhabitants, curfews and restrictions on opening hours of many activities and sectors in practically all Spanish cities, with the uncertainty of the duration of these measures. As long as they remain in place, there will be an economic impact and the uncertainty in the financial markets will be prolonged.

Other sources of uncertainty of a political nature in Spain are associated with the current high level of parliamentary fragmentation, which can make it difficult to adopt certain agreements, and the results of the elections in Catalonia.

Other sources of uncertainty

- After more than a year since the appearance of the first cases of COVID-19, the pandemic continues to cause numerous infections and deaths on a daily basis across the world, causing the extension of the isolation measures and other restrictions implemented on the population that threaten the scenario of economic recovery and may lead to fresh episodes of market turmoil. Although the vaccination process started recently, following the development of several vaccines, certain risks are still present, such as the appearance of new strains of the virus and their potential resistance to the vaccines already developed, or delays in the vaccination process for different reasons (e.g., inefficiencies resulting in delays in supply or in the vaccination process itself). A slowdown in the vaccination process implies continuing uncertainty and could worsen the prospects for the world economy this year.[16]

  The EU in particular, is partly affected by the risk of slowdown in the vaccination process due to delays and shortfalls in the delivery of the vaccines.[17] Initially, delays were announced in the delivery of the agreed doses of vaccines by some pharmaceutical companies (Pfizer and AstraZeneca), which later became significant reductions in supply. The EU, which had paid in advance for these doses (Pfizer), is trying to persuade the pharmaceutical companies to comply with the supply commitments undertaken contractually, and it cannot be ruled out that some Member States could start legal proceedings, as implied recently by the President of the Commission, who pointed out that the pharmaceutical companies had exaggerated their vaccine production and distribution capacity. These events are creating uncertainty in various areas and jeopardising expectations of a rapid recovery in health and the economy.

- Cybersecurity is one of the most significant risks faced by organisations and companies. In the current context, marked by the COVID-19 pandemic, there is an increasing digitisation of services, a rise in remote activity worldwide and a general surge in teleworking and interrelations using telematic channels. Therefore, in this environment, protection against cyber attacks, fraud and online scams, or the potential for concerted action through social networks, now raise a real need for companies to ensure their normal operations are not affected. A confidential data leak, computer system crash or any cybercrime that reflects this operational risk could affect a company and quickly spread to other sectors and services. In an increasingly interconnected system, it could

[16] The IMF forecasts world growth of 5.5% in 2021. However, this forecast is subject to great deal of uncertainty and depends largely on how the global pandemic plays out.

[17] To date, three vaccines have been licensed for use in the EU: Pfizer-ByoNtech, Moderna and Oxford-AstraZeneca.

even compromise financial stability, should there be a generalised loss of confidence in the financial markets, their intermediaries and infrastructures. The prevention and effective management of this risk, aggravated by the current circumstances, has become an increasing priority for all types of institutions and companies.[18]

[18] According to the report "Risk in focus 2021", published by the Spanish Institute of Internal Auditors, the most significant risk in 2021 will relate to cybersecurity and data protection. In this report, prepared from a survey of 579 internal audit directors of European companies, this risk topped the list of risks to be considered in 79% of cases.

Risk categories

Market risk: orange

- The international equity markets showed a positive performance in the latter part of 2020, with several venues recovering all of the losses accumulated in the year thanks to announcements about the effectiveness of several vaccines made at the beginning of November. These announcements triggered significant gains by the main international stock exchanges, with expectations of a progressive lifting of restrictions on mobility and the acceleration of economic recovery. This optimistic scenario was partially diluted in December, when the third wave of the virus infection forced some European regions to establish stricter lockdowns, which once again brought down expectations of economic recovery, in addition to the threat of a no deal Brexit up until almost the end of the year.

  2021 began with small gains that turned into losses as the third wave of the coronavirus pandemic gathered pace, with additional restrictions and lockdowns and, consequently, further deterioration of activity.

- All the largest international stock indices presented notable gains in the fourth quarter,[19] which were more significant in the European indices that had accumulated the greatest losses during the year, such as those of Spain, France and Italy. However, the performance in 2020 as a whole was uneven, with notable rises seen in the US indices and, to a lesser extent, in the Japanese markets and the German Dax 30, compared to the setbacks marked by the rest of the main European indices. Among these, despite the recovery in the last quarter, the losses of the Spanish Ibex 35 and the British FT 100 stood out.

  All the US indices posted gains for 2020 as a whole, which were greater for the Nasdaq technology index, and which led all of them to close the year at all-time highs. The Dow Jones index, with a greater weight of companies from the traditional economy, mainly industrial and financial, gained 7.2% in the year, while the more general S&P 500 rose 16.3%, thanks to the contribution of technological companies, which are gaining weight in this index.[20] Despite expectations that the new US administration will implement an expansionary fiscal policy, both indices ended January with slight losses of 2% and 1.1%, respectively, due to fears of the impact of the third wave of infection on economic recovery. The Nasdaq technology index continued to mark a positive trend in January (+1.4%), after gaining 43.6% in the past year, as the large technology companies[21] continue to benefit from the new consumption, work and leisure formats adopted during the pandemic. Looking ahead to the coming months, it is not unreasonable to expect a certain slowdown in the gains made by these companies if investors' interest moves towards companies related to renewable energies, following the shift in the energy policy of the new government.

---

[19] The US indices accumulated increases between October and December that ranged between 10.2% for the Dow Jones and 15.4% for the Nasdaq, while the European indices presented gains in the same period of between 7.5% for the German Dax 30 and 20.2% for the Spanish Ibex 35. Likewise, the European Eurostoxx 50, the French Cac 40 and the Italian Mib 30 advanced by 11.2%, 15.6% and 16.9%, respectively, while the Japanese Nikkei 225 was up by 18.4%.

[20] The technology sector represented 27.6% of the capitalisation of the index at the end of December, with the following companies having the greatest weight (in descending order): Apple, Microsoft, Amazon, Tesla, Facebook and Alphabet (Google).

[21] The shares of the big US technology companies, known as FAANG (Facebook, Apple, Amazon, Netflix and Google) posted gains of 33%, 81%, 76%, 67% and 31% respectively in 2020, which extend to 4.3% in the January 2021 in the case of Google. Meanwhile, Facebook, Apple, Amazon and Netflix posted losses of 5.4%, 0.6%, 1.6% and 1.5%, respectively, in this last period.

As indicated above, and despite the stronger recovery in the fourth quarter, European equity markets ended 2020 with losses[22] (except for the German Dax 30) which ranged between 5.1% for the Eurostoxx 50 and 15.5% for the Ibex 35. These economies had suffered the economic effects of the pandemic more severely due to restrictions on mobility. In January, losses spread to all markets, with declines of between 2% and 3.9%, on fears that the third wave of the pandemic and the delay in vaccines could set back the expected recovery. In addition, European markets once again evidenced their greater dependence on companies from the traditional economy, which, in general, are less flexible and more vulnerable in a context of greater expected falls in GDP and restrictions on mobility than companies of a more technological nature.

- In Spain, the Ibex 35 ended 2020 with a fall of 15.5%, the largest of all the big international indices, which placed the value of the index (around 8,100 points) at levels similar to those of 2016. In January, following the trend of other European markets, it registered a drop of 3.9% due to fears of a delay in the recovery of an economy that is highly dependent on the services sector. The worse performance of the Spanish index compared to its European peers in 2020 may be attributed to several factors, all of them related to Spain' s productive model, which relies on activities that have been especially affected by the crisis, and the reflection of this impact in the equity indices: i) the Spanish index has been affected by the sharp slowdown of the economy, which in 2020 presented the greatest fall among comparable large economies; ii) the greater dependency of the Spanish economy on the services sector, whose activity has been highly conditioned by the second and third wave of infections, forcing the regional authorities to adopt numerous restrictions and lockdown measures that are negatively affecting economic growth and will delay recovery; iii) lastly, the Spanish indices have a different composition to their European peers, which responds to this different productive model, with a higher concentration of financial activity and consumer services such as leisure and tourism, and this is holding back the performance of the general index, since these are sectors that are more sensitive to the effects of the outbreaks and for which recovery is expected to be slower. Other economies with a greater weight of technology companies and growth sectors, as well as cyclical industrial companies, are performing better, as these companies are the first to factor in any potential for recovery.

- Most of the Spanish sector indices presented a negative performance in 2020, although some differences were observed deriving from the uneven impact of the crisis on their businesses and their potential for recovery. Almost all sectors accumulated significant losses in the year, particularly consumer services (-36.7%) – to which leisure, hospitality, tourism and air transport companies all belong,[23] whose activity has been severely affected by the crisis – and the banking sector (-27.5%), which was negatively affected by the intensification of the ECB's ultra-expansive monetary policy stance to combat the crisis, together with the fear of increased delinquencies, a drop in business activity and restrictions[24] on the distribution of dividends. Likewise, the technology and telecommunications sector presented notable losses (-21.9%) due to links with the

[22] With the exception of the German Dax 30, which appreciated by 3.5%, all the main European indices fell in 2020: the European Eurostoxx 50 by 5.1%, the French Cac 30 by 7.1%, the Italian Mib 30 by 5.4% and the Spanish Ibex 35 by 15.5%. These losses continued in January 2021, standing at 2.1%, 2%, 2.7%, 3% and 3.9%, respectively.

[23] The main companies linked to the airline and tourism sector saw significant losses in the year: IAG (75%), Meliá (27%), NH Hotel Group (27%) and Aena (17%).

[24] At the start of the crisis, the ECB established restrictions on the distribution of dividends to financial institutions, which it partially relaxed at the end of the year. In December 2020, the monetary authority issued a new recommendation requesting credit institutions to refrain from distributing dividends or to limit them until 30 September 2021. If a financial institution decides to distribute dividends, the payout must remain below 15% of the accumulated profit for 2019 and 2020 and not exceed 20 bp of the CET1 ratio. In addition, the ECB reiterated the supervisory expectation that credit institutions be very moderate in terms of the variable remuneration they pay.

tourism sector, in the first case, and the maturity of the businesses of its traditional operators, in the second. Only the positive performance of the energy sector stood out (5%), particularly Iberdrola, thanks to the gains made by electricity and renewable energy companies, which offset the significant drop in oil companies, affected by the fall in crude prices.[25] The performance of small cap firms was noteworthy, which, as in previous years, once again outperformed larger companies throughout the year and ended it with a gain of 18.9%. January 2021 saw setbacks in quoted prices in all sectors, which once again were more significant among consumer services and associated companies, as well as in the textile sector due to the impact of the new restrictions on their activity.

- The rise in quoted prices between October and January, together with lower volatility in corporate earnings expected for the coming months, caused the price-earnings ratio (PER) of the Ibex 35 to increase from 16.4[26] in October to 17.9 in January,[27] while its historical average is 13.5 (Figure 4). The value of this ratio, which has been subject to significant adjustments throughout 2020, may continue to show some variability in the coming months, until the earnings estimates more precisely reflect the impact of the successive waves of contagion on business development.

- International debt markets followed the same trend in the final tranche of 2020 as in previous months, marked by a context of ultra-low interest rates as a result of the exceptional monetary easing measures implemented by the ECB, which include large purchase programmes for public[28] and private debt in the[29] secondary[30] markets. In this environment, interest rates on Spanish public debt closed the year at historic lows, with negative rates even being observed – temporarily – up to the 10-year segment, while in the case of corporate debt they were negative up to the 5-year term.[31] This performance was partly due to the announcements made by the ECB at its December meeting regarding the expansionary measures it would adopt to support the economic recovery and improve access to credit (see section "Context of low interest rates"). It should be noted in this regard that in the first weeks of 2021 there has been a certain decrease in the size of corporate debt purchases made by the ECB in favour of public debt.

- The yields on the public debt of most European economies closed 2020 at around their historical lows, with most seeing negative values up to the 10-year term, which continued in January, although slight rises of between 3 and 13 basis points (bp) were seen. Specifically, these values were negative in Germany, the Netherlands, Finland, Austria, Belgium, France and Ireland; close to zero in Spain and Portugal, and above 0.5% in Italy and Greece. All European economies showed decreases in the year as a whole, which ranged from 38 bp in Portugal and Germany to 90 bp in Italy, although on average they

[25] The price of oil fell by 21.5% in 2020, remaining at very low levels for most of the year (on average around US$40 per barrel), although it began to recover in the last quarter.

[26] In the same period, the PER of the US S&P 500 stock index and the European Eurostoxx 50 index rose to 22.6 and 17.8 times, the highest levels since 2000 and 2002, respectively.

[27] The PER ratio reached a value of 18.2 times in December, the highest value since 2002.

[28] At the end of 2020 the ECB held around 30% of the public debt of the four largest euro area economies on its balance sheet, compared with 19% in December 2019.

[29] The ECB's asset purchase programme (APP) had assets amounting to €2.93 trillion at the end of January, including public debt (€2.35 trillion), corporate debt (€255.30 billion), covered bonds (€287.60 billion) and securitisations (€28.60 billion). To this amount we need to add the €806.76 billion accumulated at the same date by the Pandemic Emergency Purchase Programme (PEPP), which included public debt (€764.70 billion), commercial paper (€16.60 billion), corporate bonds (€22.30 billion) and covered bonds (€3.10 billion).

[30] A portion of the purchases also takes place in the primary markets, more significantly in the case of purchases of corporate bonds and commercial paper, which at the end of January 2021 represented 40.74% and 88.27%, respectively, of total purchases.

[31] Despite this, increases in short term rates were observed on issuances of commercial paper made by companies with the lowest credit ratings, which partly reflects their difficulties in accessing market financing.

stood at around 50 bp. The volume of Spanish government bonds held in the ECB's portfolio stood at €385[32] billion at the end of January.

- In the case of corporate debt yields, greater differences are observed depending on the asset type, its rating and whether or not it is eligible for ECB asset purchases. However, investments based on "search for yield strategies" have led to significant rises in prices and falls in the yields of issues with lower credit ratings or a higher degree of subordination, given the lack of profitability of risk-free assets.

- Although the scenario of very low interest rates on debt is expected to extend over time due to the ECB purchases, the market risk assessment of debt assets remains at very high levels, especially in the case of high yield corporate debt with poorer credit ratings, and subordinated debt. The latter are not directly supported by the ECB purchase programmes and their liquidity tends to be lower. Therefore, in the current context of slowdown in economic activity, there could be significant increases in the risk premiums required for these assets. The rate increases would affect companies with the greatest difficulties and the largest debt most of all, but they could also impact the most financially vulnerable economies, where debt levels have risen significantly to address the increase in expenditure deriving from the pandemic.

  An eventual rise in risk premiums is not only significant in that it would make it more difficult for the affected issuers to obtain financing, but also due to the potential losses in the portfolios of investors with exposure to these assets. This context is especially important in the case of market participants such as investment funds, especially those with greater exposure to illiquid,[33] complex assets with credit ratings below investment grade. Market risk also increases with exposure to assets with very long maturities, the prices of which are highly sensitive to adverse changes in the yields required.[34]

Credit risk: green

- Sovereign and private sector risk premiums, which had tightened significantly in March and April last year, at the time of the greatest market turmoil caused by the pandemic, have declined progressively since then, driven by the easing of several uncertainties and the monetary policy stance adopted by the ECB. This policy is characterised by the prolongation over time of a context of ultra-low interest rates, which fuels incentives to develop strategies that seek greater returns and which have a limiting impact on risk premiums (of the most risky assets) and for the execution of far-reaching asset purchase programmes that affect sovereign, corporate and financial debt. The reduction in the risk premiums is, however, increasingly less pronounced due to the low absolute level of these indicators.

- In this context, the risk premium of Spanish sovereign debt measured as the yield spread between the Spanish and German 10-year sovereign bond was 62 bp at the end of January, practically the same level as at the end of 2020 (63 bp), and well below the high reached in April (156 bp). The sovereign risk premium measured on data for the CDS of

[32] This amount reflects purchases of public debt acquired under the Public Sector Purchase Programme (PSPP), which amounted to €295 billion, and purchases made in the context of the Pandemic Emergency Purchase Programme (PEPP), which amounted to €89.85 billion at the end of January 2021. In total, the Spanish public debt held by the ECB represents around 38% of the balance of long-term government bonds.

[33] The large scale purchases made by the ECB, both in the primary and secondary markets, of corporate debt and some types of debt issued by financial institutions could be affecting the liquidity of issues of smaller volumes or that are concentrated in a limited number of investors.

[34] Thus, an upward variation of 50 bp in the required yield of a 10-year bond implies a decrease in its price of more than 4.5%.

the Spanish bond, whose market is less liquid than that of the underlying bond, presented a similar pattern although it does not yet show values lower than those existing before the crisis. It stood at 43 bp at the end of January, unchanged from the end of December and well below the 167 bp reached in mid-March last year. It should be noted that the ECB acquires Spanish public debt through two asset purchase programmes (the PSPP and the PEPP), under which it has accumulated a balance of €384.84 billion, 38% of the outstanding balance of long-term government debt.[35]

- The risk premiums in the private subsectors of the economy marked the same trend as sovereign credit risk premiums, with those of financial institutions reducing further, a trend which extended to the early weeks of 2021. The same factors as those affecting sovereign debt impacted both subsectors, including the ECB measures, which not only affect financial institutions through the availability of different funding transactions under favourable conditions,[36] but also through debt purchases made by the monetary authority, which include securities issued by financial institutions and some issued by non-financial companies.[37] Thus, the average CDS of financial companies stood at 66 bp at the end of January, below the 78 bp at the end of 2020 and the 141 bp reached in March, and the average CDS of non-financial companies stood at 57 bp in January, just 2 bp below the December figures and much lower than the 126 bp seen in March.

- Information on the credit ratings of the debt of Spanish issuers in the fourth quarter of 2020 continues to identify no significant credit risk, at least for the group of issuers for which this information is available. These ratings, which had deteriorated slightly in the first months of the crisis, tended to stabilise thereafter and, although there have been some downgrades affecting various issuers, these are neither generalised nor concentrated in a specific sector.

  The data show that most of the Spanish debt is still high quality, investment grade debt (96.3% of the total outstanding amount). The portion of investment grade debt in the notch above high yield debt (BBB- for Fitch and S&P, Baa3 for Moody's), remains stable after the increase seen in June. This debt, which represented 3.2% of total outstanding debt in March, increased to 4.4% in June and remained at this level until December. The amount of this debt is low and relatively similar to the total balance of high yield debt, which represents 3.7% of the total outstanding debt (around 3.5% in the rest of the year).[38]

- Although the credit risk of Spanish issuers does not show any particularly negative or alarming trends, according to the above indicators (risk premiums and credit ratings), some clarifications should be made that could lead to less optimistic conclusions. Firstly, the low level of risk premiums is largely explained by the measures adopted by the central bank, which are having a strong impact on the fixed income markets of all euro area countries. Secondly, both the risk premiums and the credit ratings shown largely correspond to medium and large sized companies, which may, in some cases and to some extent, be less affected by the current crisis. Lastly, measures adopted by the authorities,

[35] See footnote on page 33.

[36] Targeted longer-term financing operations (TLTRO) and pandemic emergency purchase operations (PELTRO) stand out in this group.

[37] There are specific programmes for the purchase of instruments issued by financial institutions, in particular the covered bond purchase programme (CBPP3) and the asset-backed securities purchasing programme (ABSPP), and also the corporate sector purchase programme (CSPP). In addition, the purchase programme implements in the context of the coronavirus pandemic crisis (PEPP) is transversal and securities issued by the public sector and by the private sector, financial institutions and non-financial companies can be acquired.

[38] For more details on the credit ratings of Spanish debt between March and June, see the article published by Cambón, M.I. and Gordillo, J.A. (2020). "Changes in credit ratings of Spanish debt assets since the onset of the COVID-19 crisis". *CNMV Bulletin,* Quarter III, pp. 93-121.

such as moratoriums, public guarantees or direct aid, have so far prevented a considerable rise in company insolvencies, and these are very likely to increase as the measures are lifted. Therefore, higher credit risk has been identified for the coming months, which will mainly affect smaller companies and those belonging to sectors that have been more severely disrupted by the restrictive measures deriving from the pandemic.

- Financing for non-financial sectors[39] of the economy ended 2020 with year-on-year growth of 3.2%, the highest rate in the whole year, due to the rise in financing extended to non-financial companies and stability in the decrease in financing extended to households. Financing extended to non-financial companies, which grew at close to 2% in the first quarter of last year, increased progressively to close the year at 6.2%. This performance derived from the substantial rise in loans (year-on-year variation of -1.1% in February and 8.1% in December), while financing via debt securities grew by 7.8%, which is still high but much lower than the rates of close to 15% registered in previous months. Credit extended to non-financial companies has grown at over 7.5% since May, although these values could ease in the coming months given the latest data available in the Bank Loan Survey, according to which institutions will continue to tighten their criteria for granting loans to companies, regardless of their size and the term of the loan. Financing extended to households contracted by 0.6% in December, recovering slightly from the most negative values of the year observed in May (-1.0%). The decrease in financing to households is explained by the slowdown in loans for house purchases (which ranged from -0.8% to -1.4% throughout 2020) and the sharp drop in other loans, mainly consumer loans. The latter grew at a rate of 0.6% in December, well below the figures recorded at the beginning of the year (4.2% in February).

Liquidity, financing and fragmentation risk: yellow

- Fixed income issues registered with the CNMV in the fourth quarter of 2020 stood at €54.73 billion, 56% up on the same period of 2019. This increase was due to the increase in SAREB issues and securitisation bonds,[40] the latter carried out by financial institutions to obtain instruments that serve as collateral for their ECB financing transactions. For the year as a whole, registered issues stood at €132.11 billion, 47% more than in 2019 and the highest amount since 2016, with significant growth in the issuance of securitisation bonds, commercial paper issued by non-financial companies[41] and certain specific types of instruments such as regional covered bonds. Fixed income issues of Spanish companies abroad decreased by 10.1% to stand at €90.20 billion, a volume that once again was lower than that of the issues registered in Spain. Preliminary data for January 2021 indicate a slowdown in debt issues registered with the CNMV compared to previous months, which related more to the issuance of commercial paper and the renewal of covered bond issues.[42] There was only one IPO in the equity markets – through a public share offering – of the renewable energy company Soltec, although the market expects similar operations from companies in the same sector for the year 2021.

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

[40] Securitisation bond issues registered in the fourth quarter grew 106% in year-on-year terms and represented 55% of all those made in 2020.

[41] The issuance of commercial paper was boosted by the guarantee programme for non-financial companies (established by Royal Decree-Law 15/2020, of 21 April, on urgent complementary measures to support the economy and employment) and which established as condition their incorporation into the fixed income market (AIAF or MARF).

[42] Debt issuance registered with the CNMV in January stood at €3.93 billion, 8.2% less than in January 2020, of which more than half was short-term commercial paper.

- The financing capacity of the Spanish economy stood at €3.80 billion in November,[43] a figure similar to that seen in the same period of 2019 (€3.70 billion) and the highest to date in 2020. The slump in the balance of tourism, the lowest in this month since the beginning of the series, was offset by the positive performance of goods and other services, as well as primary and secondary income. On a cumulative basis for the past 12 months, the financing capacity of the Spanish economy up to November stood at €14.10 billion, less than half the figure of €31.80 billion reached to the same month in 2019. Further, capital outflows[44] were €23.40 billion in August, although on a cumulative basis for the past 12 months there was an outflow of €84.60 billion.

- Household deposits grew by 7.4% year-on-year in December, while those of non-financial companies increased by 15%, reaching €916.30 billion and €297.10 billion respectively, the highest values in the historical series. Both households, where deposits have grown every month except in August, and companies have continued to accumulate liquidity in deposits (jointly over €109.70 billion more between the end of February and December) in order to meet the extraordinary needs that could arise in a near future characterised by lower economic activity and higher unemployment and uncertainty about future income,[45] in addition to the lack of any profitable low risk investment alternatives.

- Average daily trading in the continuous market recovered slightly – as is usual – in the fourth quarter of the year, to stand at €1.61 billion. However, this was lower than the average for the entire year (€1.65 billion) and 18.4% lower year-on-year.[46] Preliminary data for January of this year indicate that daily trading once again fell sharply to €1.53 billion, 6% lower than in the previous year and the lowest volume for that month in the last decade. It should be noted that on 16 January the Financial Transaction Tax came into force, which levies 0.2% on acquisitions of 56 securities[47] listed on the Spanish stock markets.

- Also, the fragmentation in the trading of Spanish shares, which reached historical highs in the third quarter of 2020,[48] eased slightly in the last quarter of the year when 46.1% of trading in these securities subject to market rules (lit plus dark) was traded in venues other than the home market. The delocalisation trend seems to have reached a ceiling in Europe as a whole, with a stable performance and even some reversal being observed in places where the market share of competing venues has once again fallen below 40%.[49] It is not yet clear whether Brexit will diminish the importance of competing venues, as a large part of the trading venues based in the United Kingdom are establishing subsidiaries in the EU to be able to trade freely. Additionally, trading in Spanish shares

[43] According to the data of the monthly advance of the balance of payments of the Bank of Spain.

[44] The data reflect the financial account excluding the Bank of Spain.

[45] See the latest household savings data described under the heading "Macroeconomic environment".

[46] Average daily trading on the continuous market reached its lowest volume in recent years in the third quarter of 2020, with the annual average for 2020 (€1.65 billion) 9.4% lower than the figure registered in 2019 (€1.82 billion).

[47] The tax levy 0.2% on acquisitions of shares representing the share capital of Spanish companies with a market capitalisation of over €1 billion as of 1 December of the year prior to the acquisition.

[48] Trading in other trading venues and markets that are competitors of BME represented 47.9% of the total trading subject to market rules in the third quarter of 2020, its historical high, although it was at very high levels (usually over 45%) throughout the year.

[49] The low volatility prevailing in the markets in recent years discouraged high-frequency trades, which usually take place mostly in competing trading venues on regulated markets. However, 2020 saw a considerable increase in volatility and, consequently, in high-frequency trading, although in most markets there was no increase in the share of competing venues in most European markets, but a certain stabilisation and even small declines in the shares.

through systematic internalisers (therefore, not subject to market rules) stabilised at above 15% of the total trading[50] in 2020.

- The Ibex 35 liquidity indicator (estimated by the size of the bid-ask spread), which had deteriorated significantly in the first half of the year as a result of the high volatility of the markets and, to some extent, of the more stringent restrictions established by the CNMV for short-selling transactions on a large number of securities, improved progressively from the last part of the second quarter, although it continues to show values that are slightly higher than those existing before the start of the crisis. In the case of the sovereign bond, this spread improved slightly[51] during the period, thanks to the intensity of the ECB' s purchases, which increased market liquidity. Although the range is very small in absolute terms (less than 1 bp), its size appears to be significant in relative terms in the current low rate environment (see Figure 15).

- Interest rate spreads between loans to Spanish companies and those to companies in the euro area decreased once again both for loans for an amount of less than €1 million and for those with higher amounts. The former disappeared in November (from 4 bp in September) and the latter decreased to 3 bp (from 7 bp in May), putting it at its lowest level in the last nine months. Further, the Bank Loan Survey for the fourth quarter of the year showed a slight contraction in the credit supply both in Spain and the euro area, which is probably linked to the increase in the risks perceived by financial institutions, in a context of a deteriorating economic outlook, which would also be reflected in a drop in demand for loans. Institutions have also tightened their criteria for granting loans in the segments of financing to businesses and households for consumption and other purposes.[52]

Risk of contagion: orange

- The correlation between the daily returns of the different types of Spanish assets has continued the declining trend seen since the peaks reached in March last year following the outbreak of the coronavirus pandemic. However, while it has decreased considerably since then, the correlation is at levels that are higher than those observed in January 2020 (see Figure 31). Following the upswings registered at the start of pandemic, when the median of the correlations was 0.75, a progressive decline has been observed to 0.27 at the end of January. This value is lower than the average recorded for full year 2020 (0.42) and closer to the average values for 2019 (0.19). The minimum values for these correlations have also decreased compared to October and are at levels close to those recorded before the start of the pandemic (-0.32 at the end of January). In contrast, the maximum values have remained at around 0.60. Further deterioration of the economic scenario deriving from uncertainties related to fresh outbreaks or vaccination-related issues could reverse this trend and lead to further increases in the asset correlation. In general, higher levels of correlation lead to an increase in the chances of contagion among different asset classes and make it more difficult to obtain the benefits derived from portfolio diversification.

[50] Total trading is measured in this context as the sum of the trading subject to market rules and that carried out through systematic internalisers.

[51] The spread continues to stand out in relative terms, but is subject to agents' transaction costs, which are very significant in an environment of low interest rates.

[52] Information for the first half of 2020 shows large differences between secured loans and other loans. In that period, the criteria for granting loans with public guarantees to businesses and households were relaxed, leading to a contraction in the supply of unsecured loans. Demand for secured loans would have grown significantly, while demand for other loans would have fallen.

- In regard to movements in European public debt assets, a decrease in the correlation between the performance of these assets has been observed in recent weeks, although levels remain high. In particular, the correlation between the yield on the Spanish sovereign bond and that of the core European countries decreased from very high values in October (0.92) to somewhat lower values at the end of January (0.71). The trend was somewhat irregular: in November these levels remained very high, above 0.90, and subsequently fell to around 0.62 in mid-January, mainly driven by the decline in the indicators related to the German and Dutch bonds. Thereafter, the correlation between the yield on the Spanish sovereign bond and that of core European countries increased to 0.71 at the end of the same month. Similarly, the correlation between the yield on the Spanish sovereign bond and that of the peripheral countries also registered a significant decline since late October (Figure 32). Thus, this indicator went from 0.91 to 0.77 at the end of January, mainly due to the decrease in the correlation between the Spanish and Greek bond, without which this indicator would stand at 0.83.

Market risk: orange

Figure 3. Stock market prices

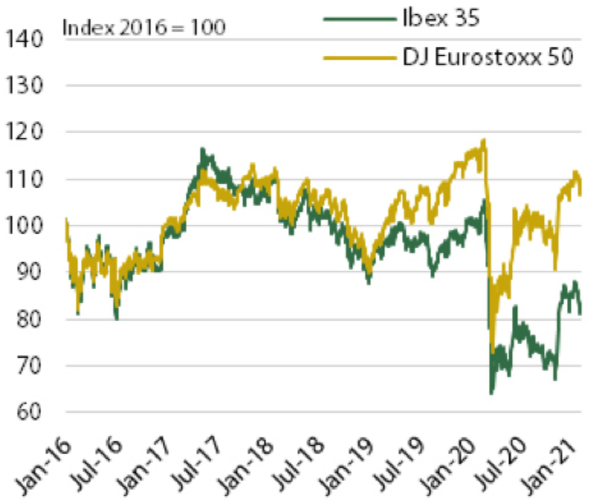
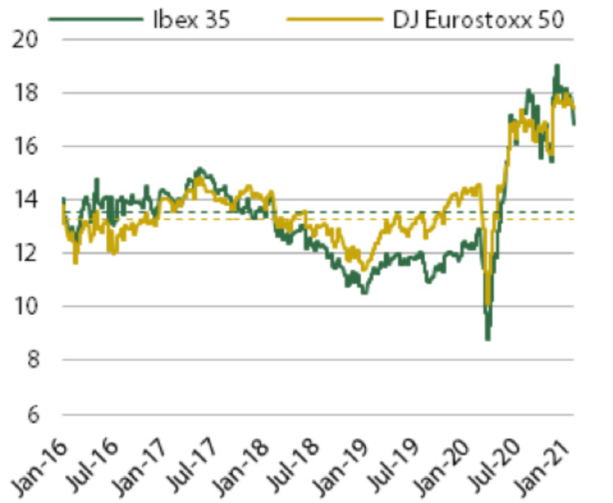


Figure 4. Price-earnings ratio (PER)



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

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

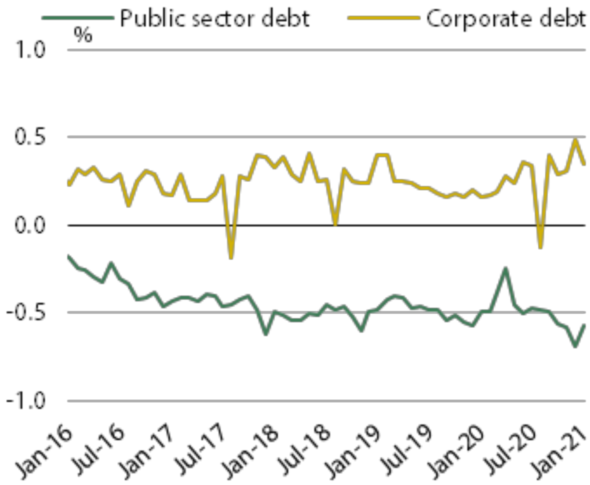


Figure 6. Long-term interest rates (10 years)

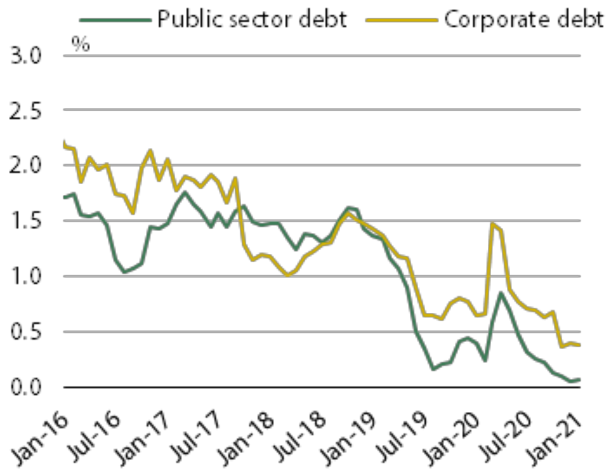
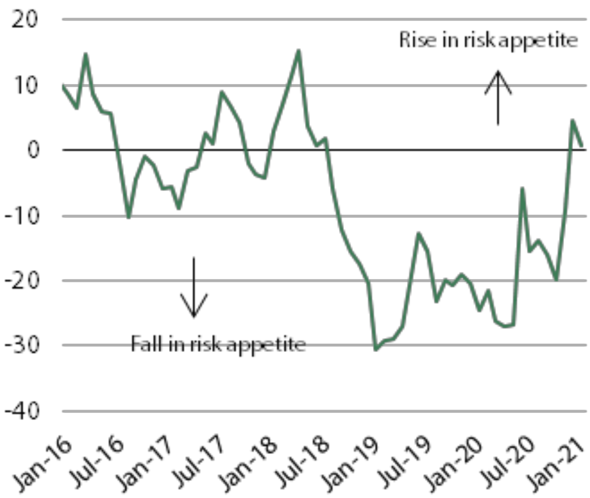


Figure 7. Oil price

Figure 8. Risk appetite (State Street)



Credit risk: green

Figure 9. Financing of the non-financial sector

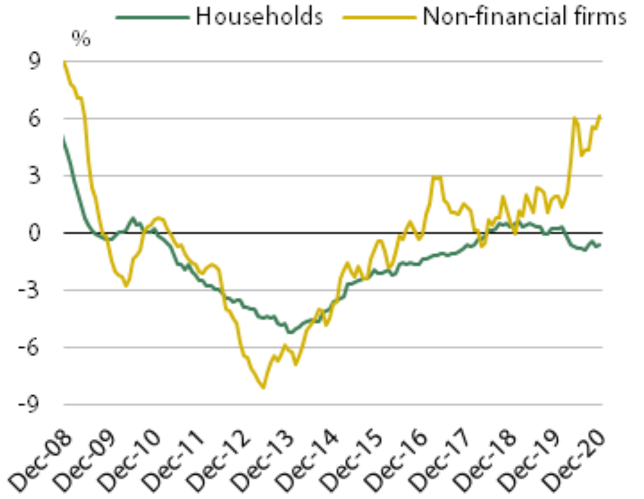


Figure 10. NPL (delinquency) ratio and unemployment rate

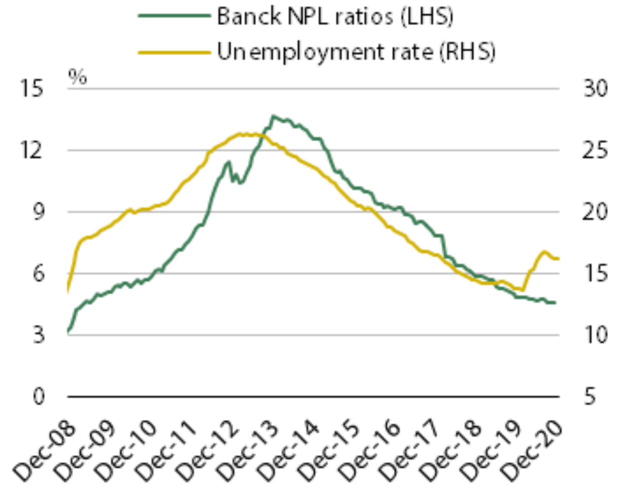


Figure 11. 10-year government debt risk premium (rate differential with Germany)

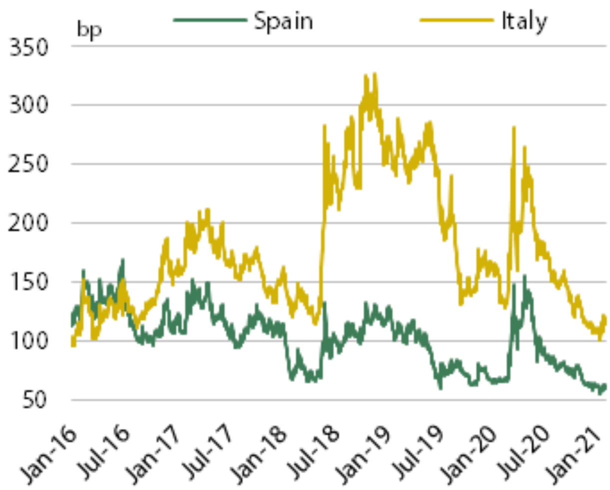


Figure 12. Private debt risk premium (5-year CDS)

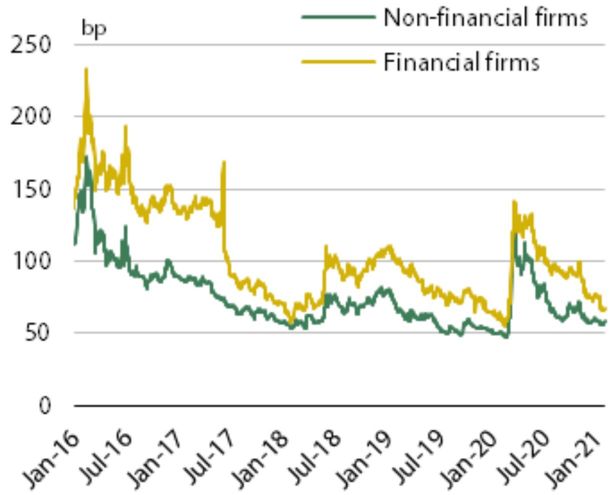


Figure 13. Housing prices (year-on-year change)

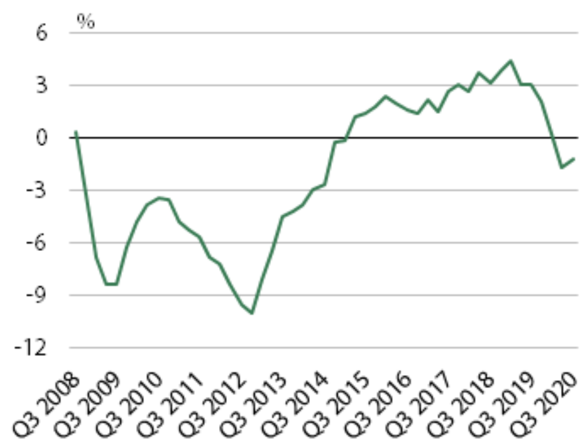
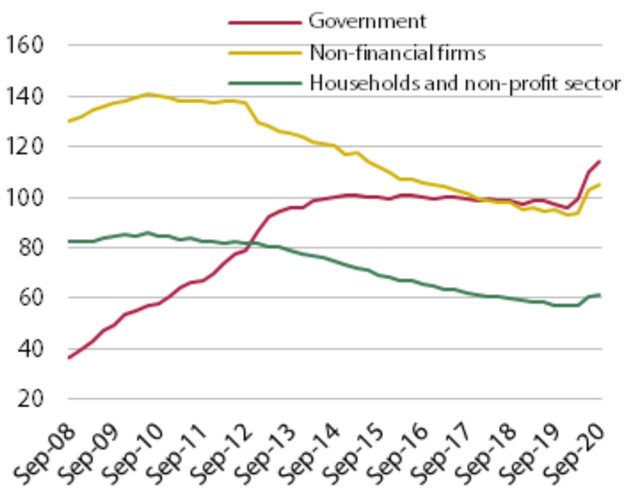
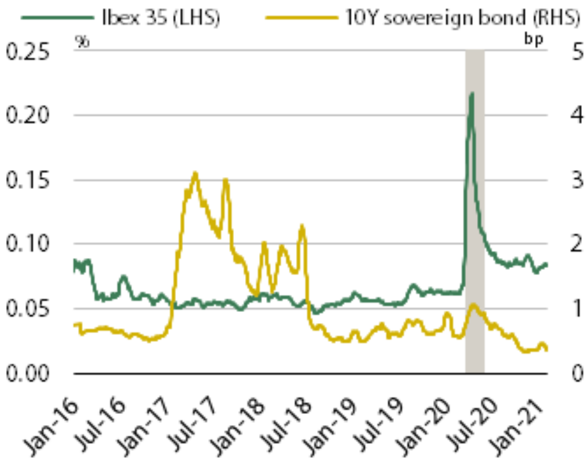


Figure 14. Indebtedness (% GDP)



Liquidity, financing and fragmentation risk: yellow

Figure 15. Liquidity (bid-ask spread)



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

Figure 16. Volatility (1-month moving average)

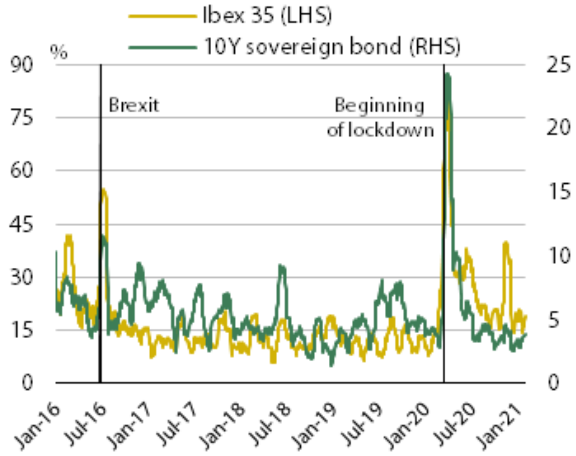


Figure 17. SIBE trading (1-month moving average)

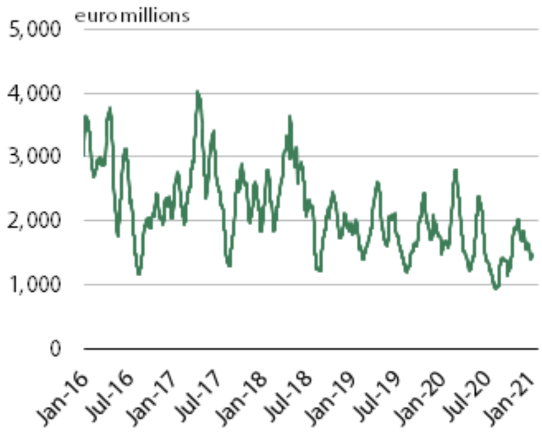


Figure 18. Interbank spread (LIBOR-OIS)

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

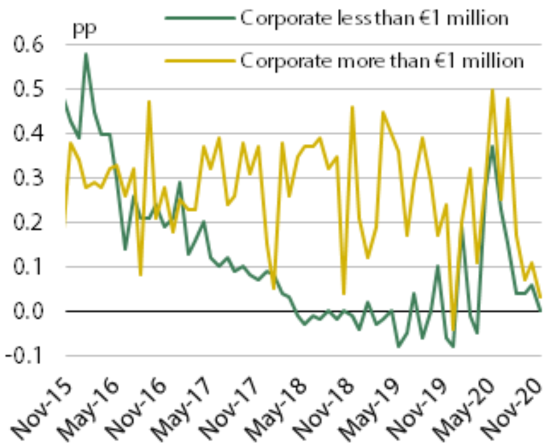
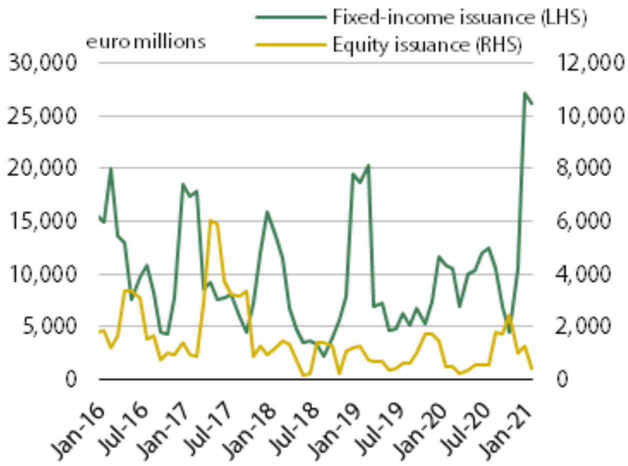


Figure 20. Issues (3-month moving average)



Macroeconomic risk: red

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

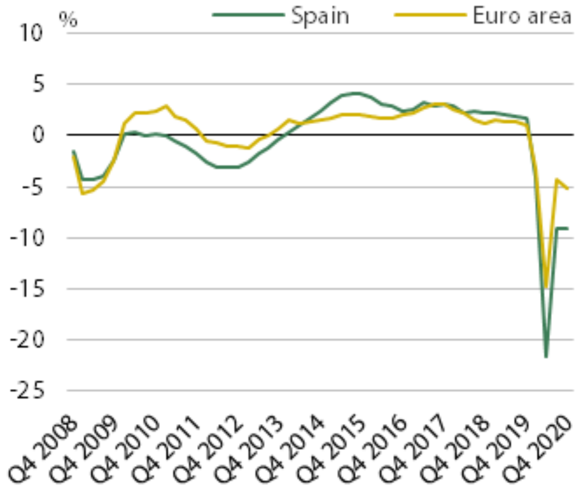


Figure 22. HCPI and core CPI (year-on-year change)

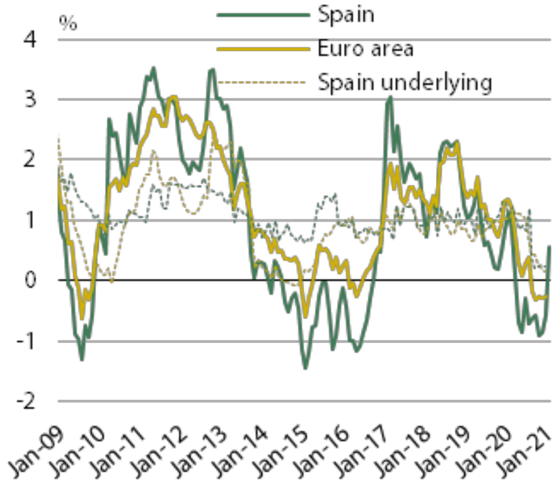


Figure 23. Employment (year-on-year change)

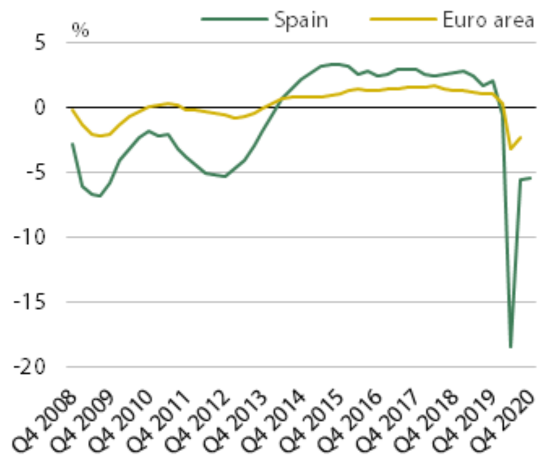
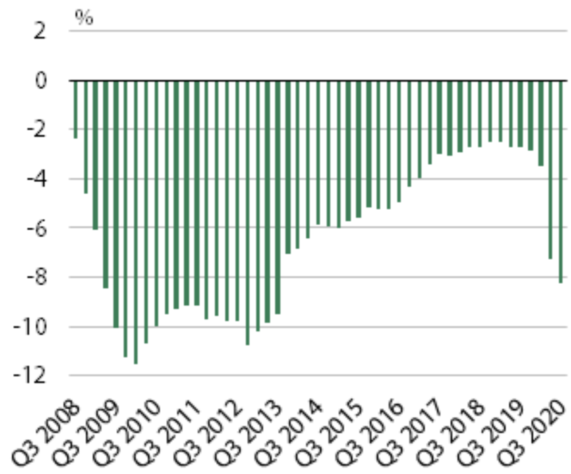


Figure 24. Public deficit (% GDP)



Cumulative data for four quarters.

Figure 25. Exchange rates

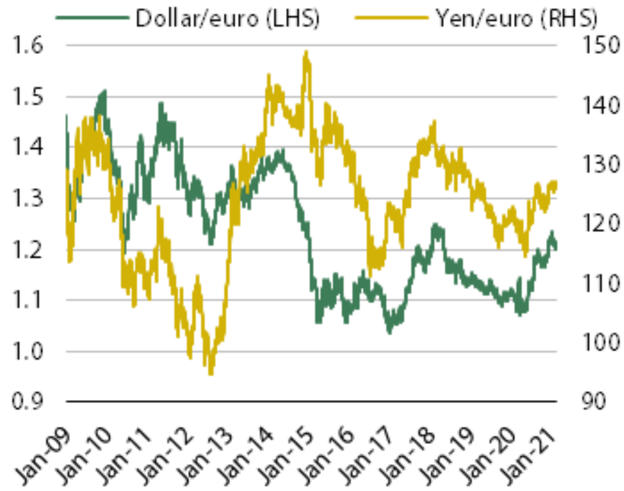
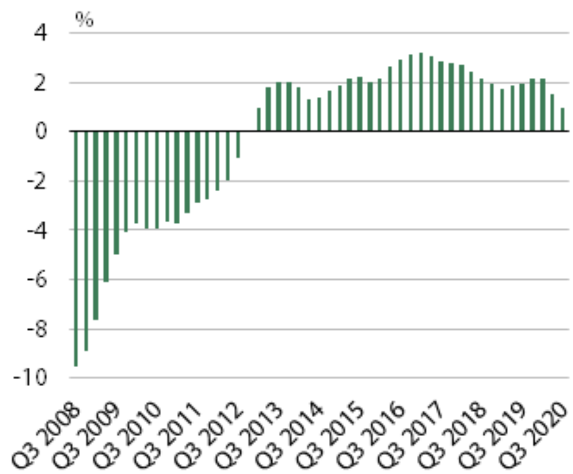
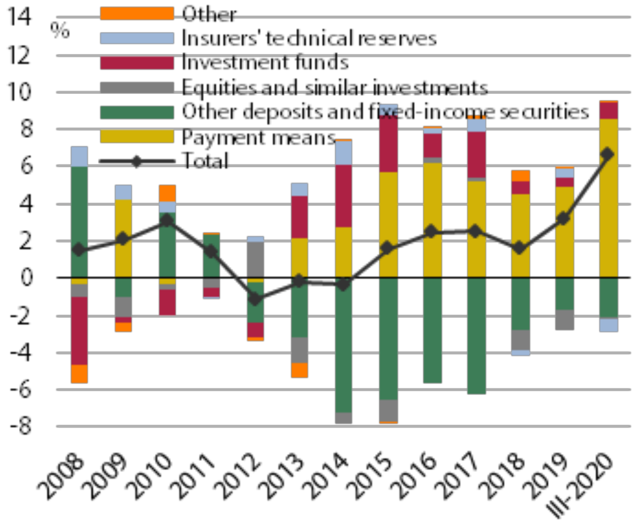


Figure 26. Current account balance (% GDP)



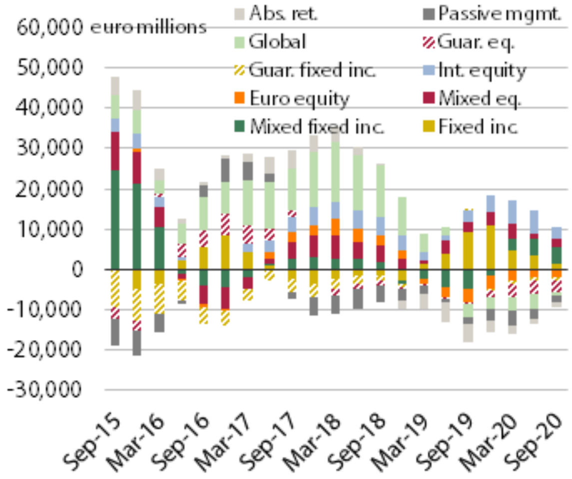
Investors

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



Cumulative data for four quarters.

Figure 28. Net subscriptions to investment funds



Cumulative data for four quarters (millions of euros).

Figure 29. Households: savings (% disposable income)

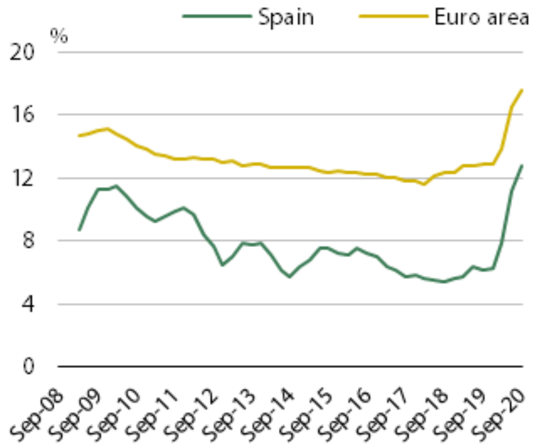
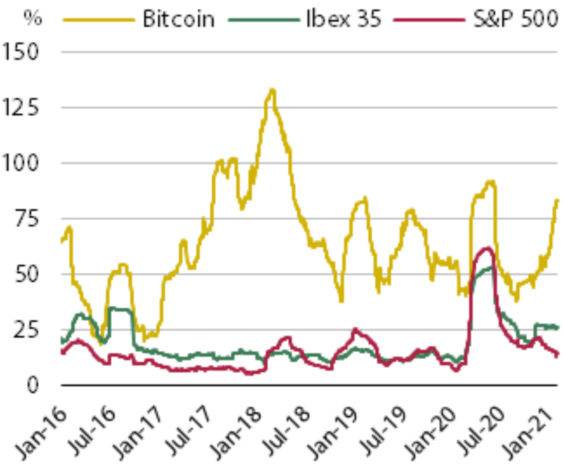


Figure 30. Bitcoin volatility



Risk of contagion: orange

Figure 31. Correlations among asset classes

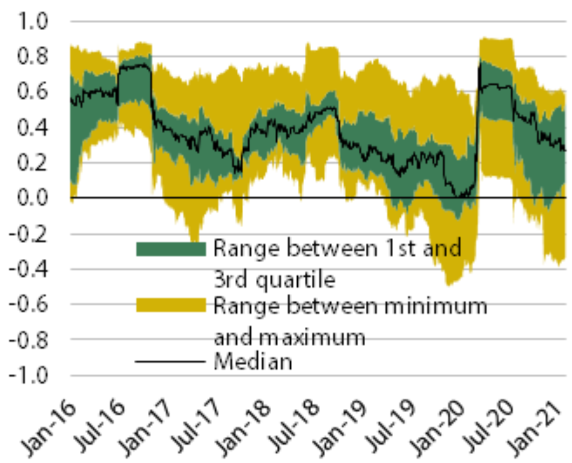
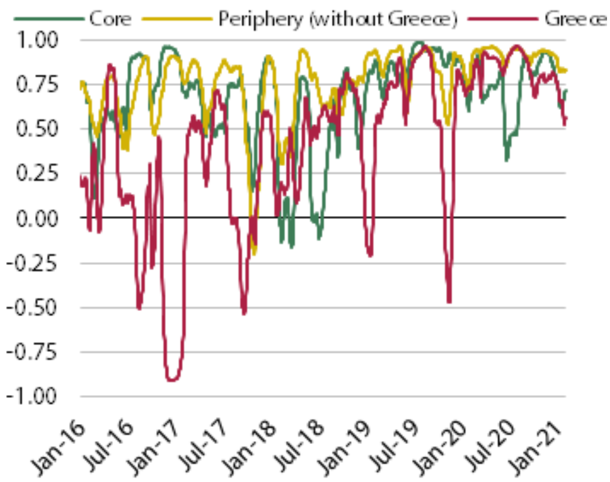


Figure 32. Correlation between the yield on Spanish and other European 10-year bonds



Heat map: risk categories

Source: CNMV, Bloomberg and Thomson Datastream.

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

Explanatory Notes

Spanish financial markets stress index (Figure 1): The stress index provides a measurement in real time of the systemic risk facing the Spanish financial system, ranging from between zero and one. To this end, stress is evaluated in six segments of the financial system (equities, fixed income, financial intermediaries, the money market, derivatives, and the exchange markets) which are then aggregated to obtain a single figure. The stress for each segment is evaluated by means of cumulative distribution functions and the subsequent aggregation takes into account the correlation between segments, in such a way that the index places greater emphasis on stress situations in which correlations are very high. In general terms, the stress variables chosen for each segment (three for each one) correspond to volatilities, risk premiums, liquidity indicators, and sudden loss of value. These variables are good indicators of the presence of stress in the markets. Econometric estimates indicate that index values below 0.27 correspond to periods of low stress in the financial system, while scores between 0.27 and 0.49 correspond to periods of medium stress, and values above 0.49 indicate periods of high stress. The methodology of this index follows the work of Holló, Kremer and Lo Duca in 2012 to propose a similar index for the euro area. For further details on recent movements in this index and its components, see the CNMV' s statistical series "Market stress indicators", available at http://www.cnmv.es/portal/Menu/Publicaciones-Estadisticas -Investigacion.aspx. For further information on the methodology of this index, see Cambón, M.I. and Estévez, L. (2016). "A Spanish Financial Market Stress Index (FMSI)". *Spanish Review of Financial Economics,* Vol. 14, No. 1, pp. 23-41 or as CNMV Working 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 some macro-economic variables. The main purpose behind the production of these maps is to provide an idea of the position of the reference indicators in relation to their recent history (in most cases three years) or with some predetermined limits, by associating this position with a certain colour. When an indicator changes from green to a warmer colour (orange or red), it does not necessarily mean the existence of risk; rather it indicates a movement towards an extreme value (very high or very low) in the period or range of values used as a reference. If an indicator remains at extreme values for a prolonged period, it may suggest the need for a more detailed analysis; that is to say, it may be interpreted as an alarm signal. The most comprehensive heat map includes 43 indicators,[53] five of which are prepared by the CNMV. The large number of indicators taken into consideration allows us to make an analysis of vulnerabilities for each segment of the financial markets (equity income, fixed income, banking sector, etc.) or for different risk categories (macro, market, liquidity, credit, etc.), as illustrated in Figure 2. The colours of these aggregates (markets or risk categories) are assigned by calculating a weighted average of the values of the individual indicators they comprise. In each aggregate, one of the individual indicators determines the generation of the overall colour: for example, in macro-economic risk, the indicator used to calculate the aggregate is GDP. This means that until this is published, the macro-economic risk block is not given any colour in the map. For more detail on the methodology and analysis of these maps, see Cambón, M.I. (2015). "Identification of vulnerabilities in the Spanish financial system: an application of heat maps". *CNMV Bulletin*, Quarter I, pp. 109-121.

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

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

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

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

- Correlation between the yield on the Spanish and other European 10-year bonds (Figure 32). The correlation is calculated using daily data in three-month windows. The countries of the core group are Germany, France, the Netherlands and Belgium and the peripheral countries are Portugal, Italy, Greece and Ireland.