CNMV
Comisión Nacional del Mercado de Valores

Financial Stability Note

No. 16 October 2020

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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 domestic securities markets during the last quarter, identifies changes in the level of different financial risks and identifies the major sources of risk.

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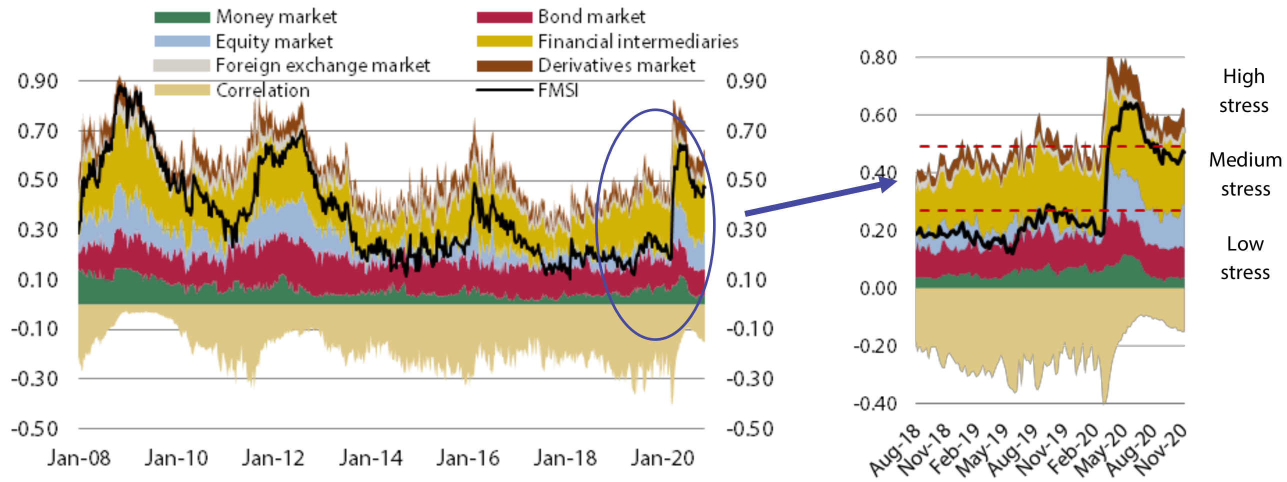
Summary

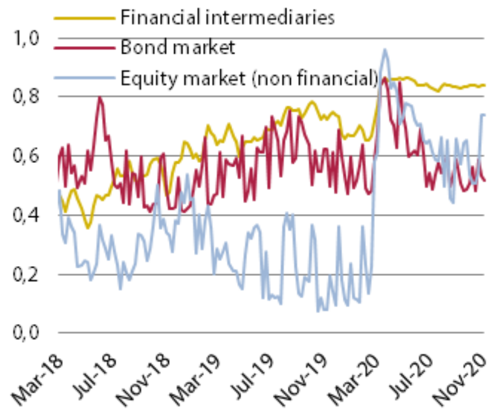
- ✓ Since the publication of the last Financial Stability Note in August, the level of stress in the Spanish financial markets has decreased slightly, as they have shown a little more stability with respect to the most turbulent moments of the crisis. In particular, the stress indicator stood at 0.47 at the beginning of November,[1] within the area of medium stress, below the maximum reached in May (0.65), but still close to the threshold that separates medium risk from high risk. The current level of uncertainty remains very high, as information of different signs is revealed each day: on the one hand, the negative effects of the second wave of coronavirus infections in Europe are still unknown and, on the other, hopeful news is emerging regarding the development of new vaccines. This situation may lead to fresh episodes of turbulence that will prevent a sharper decrease in stress in the market. The segments of the financial system that continue to show the highest level of stress are financial intermediaries (banks) and non-financial equities, all in an environment of very high correlation in the system.

Stress indicator of the Spanish financial markets FIGURE 1



Total stress indicator

Indicators in the bonds, financial intermediaries and equities segment



Source: CNMV.

For more detail on the recent movements in this indicator and its components, see the 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 October, except for the stress indicator which includes 6 November and certain other specific data.

- ✓ The macroeconomic situation in Spain has deteriorated sharply since the beginning of the crisis, as shown by the most relevant activity and employment indicators. In fact, macroeconomic has risk been at the highest level on the heat map from March (see Figure 2) as a consequence not only of the rapid deterioration of GDP and employment, but also of the main fiscal components. Despite the fact that GDP grew by 16.7% in the third quarter compared to the second, the annual change remains very negative (-8.7%) and lower than the figures for the euro area (-4.3%). The forecasts made by different institutions and organisations for Spanish activity – which are subject to a very high degree of uncertainty – place the fall in GDP this year at rates close to or greater than 12% (approximately 8% for the euro area), while next year there could be rises of between 4% and 7%. It should be noted that, if the availability of a highly effective vaccine is confirmed in the coming months, the recovery could be somewhat more intense and faster than anticipated. In the medium term, two significant vulnerabilities are the foreseeable and significant increase in the unemployment rate and the level of public debt, which this year could exceed 120% of GDP.

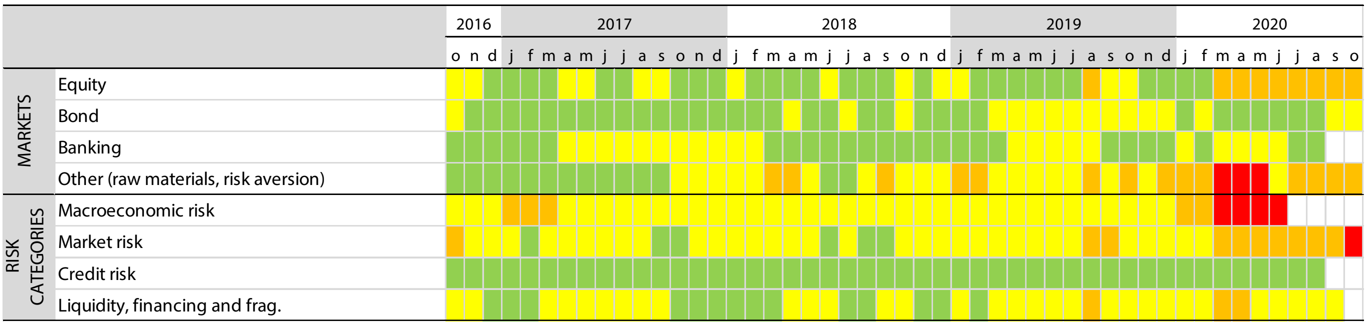
- ✓ The slowdown in Spanish economic activity was further reflected in the performance of share prices between July and October, a period in which the general trend of the Spanish market was downward and its relative performance was worse than that of other European indices. The situation seems to have been reversed in the first days of November when the result of the US electoral process and the news of the high effectiveness of a vaccine in its final phase of development translated into significant gains for the stock exchanges, which in Spain were among the highest among the European indices (15.6% up until 9 November). The recent rebound is more intense in companies and sectors most affected by the crisis in previous months, such as tourism and hospitality, which would benefit the most from an early economic recovery. All in all, in the year to date the Ibex 35 has accumulated a decrease of 21.9%, well above the falls registered by other European indices, which oscillate between 1% and 12%. In the fixed income securities markets, no significant developments have been observed since our last Note, with the returns on most assets and risk premiums remaining at low levels as a consequence, fundamentally, of the large-scale asset purchases made by the European Central Bank (ECB). Search for Quality strategies in public debt assets, and Search for Yield strategies in corporate debt assets are also playing an important role.

- ✓ The most significant financial risks that continue to be identified are related to market risk in certain categories of assets, such as high-yield corporate debt or subordinated debt, where risk premiums could increase in the current context of economic slowdown. In this case, not only the market risk of these assets would be relevant, but also their credit and liquidity risk. Regarding issuers' credit risk, no substantial deterioration is being observed for the moment, based on the performance of credit ratings is taken into account. However, the severity and duration of the economic crisis, together with the conclusion in the coming months of most of the support measures adopted by the Government could have a negative impact on the business performance of many companies, which makes it necessary to maintain an ongoing assessment of this risk.

- ✓ The sources of risk that may eventually be significant in terms of financial stability have progressed differently in recent months, although they remain numerous and important. Risks relating to the increase in non-face-to-face activities, the widespread use of teleworking and relationships via remote means remain at very high levels, which is why the improvement of cybersecurity is increasingly important. On the other hand, sources of political risk remain unchanged in Europe, in particular the Brexit process and, at a national level in Spain, parliamentary fragmentation; while they seem to have improved outside Europe, particularly after learning of the foreseeable change in the US government. Finally, it is worth noting the persistence of the risks derived from the context of low interest rates, which is set to last for quite some time and which, among others, encourages search for yield strategies and indebtedness among agents, while at the same time negatively affecting the development of the banking business, although it keeps the financial costs of indebted agents low.

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

FIGURE 2



Source: CNMV. See the 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 to 31 October.

Sources of risk

Macroeconomic environment

- According to the advance offered by the National Institute of Statistics (INE), during the third quarter of the year the GDP of the Spanish economy grew by 16.7% compared to the previous quarter, when the fall was -17.8%. This notable quarterly increase, which occurs after comparison with the production data for the second quarter, was not enough to also show an increase in the year-on-year variation of GDP, which stood at -8.7%. In the euro area, the quarterly and year-on-year variation in GDP in the third quarter was 12.7% and -4.3% respectively (see Figure 21). The quarterly data on activity in Spain show a significant rise both in household consumption, which was 20.7% (-10.4% year-on-year), and in investment (gross capital formation), which increased by 17.8% (-12.8% year-on-year).[2] On the other hand, there was an increase in public spending of 1.1% between July and September, which represents a rise of 3.7% in the last four quarters, the highest since 2009.

  The main institutions' forecasts for 2020 and 2021, which are still subject to a high level of uncertainty deriving from the duration and the effects of renewed outbreaks which have been experienced since autumn, estimate a fall in GDP of between 10% and 13%. Thus, the Bank of Spain, in its macroeconomic projections for the month of September, forecasts that, depending on how the pandemic evolves and how serious the new outbreaks are, GDP will fall this year, according to the scenario that eventually materialises, by between 10.5% and 12.6% (in the June report these projections were substantially better, ranging from 9.0% to 11.6%). In 2021, activity would recover by between 4.1% and 7.3% (compared to between 7.7% and 9.1% in the forecasts from the previous report).

  The International Monetary Fund (IMF) published its forecasts at the beginning of October, taking as a reference, in its base case scenario, a situation that is slightly better than the one in the document published in June, which was supplemented by two other scenarios: one more favourable, in which there is a quicker emergence from the crisis, and another more unfavourable, in which the containment of the virus ends up being more complicated and slower. In the base case scenario, a higher than initially expected recovery in some economies would lead, in general terms, to an upward revision of growth rates for this year and downward for the next. This organisation thus estimates that the global economy will decline by 4.4% this year (the previous forecast was -5.2%), then grow by 5.2% in 2021 (5.4% in the June estimate). In the case of Spain – the only advanced economy for which 2020 estimates have not improved – the forecast continues to be -12.8%, although the projection for 2021 does improve by 0.9 pp, with estimated growth of 7.2%. These figures are below the projections for the euro area this year, for which a decline of 8.3% is expected (after an upward revision of 1.9 pp), but above those for 2021, with 5.2% growth in the European economy.

  In early November, the European Commission published growth estimates for Spain of -12.4% of GDP (-7.8% for the euro area), which represents a drop of 1.5 pp compared to the forecast made a few months previously and places Spain as the economy with the greatest contraction. However, the recovery being forecast for 2021 would be greater than

[2] In the second quarter of the year, in the midst of the lockdown, household consumption and investment contracted at a quarterly rate of 20.4% and 21.5%, respectively.

that of the other European economies, with 5.4% growth compared to an average of 4.2% in the euro area.

- Despite the creation of around 570,000 jobs[3] during the third quarter of this year, this figure was insufficient to recover the losses seen in the previous three months[4] and to prevent the unemployment rate from rising, which stood at 16.3% at the end of September (15.3% in the second quarter). It should be noted that the situation in the labour market would have been worse had it not been for the temporary furlough scheme (ERTE), which has been extended until 31 January.[5] Thus, at the end of September there were 728,909 people affected by this scheme, of which more than 253,000 came from the hospitality sector. The figure, which is still very high, is significantly lower than the peak levels reached in May (3.4 million people). Regarding affiliation to the Social Security system, records for the month of October showed an increase of 113,974, reaching almost 19 million people, continuing the trend seen in the last six months. Despite this increase, the number of contributors to the system has fallen by 439,628 during the last year (-2.3%). The Bank of Spain's forecasts for the end of 2020 indicate an unemployment rate, depending on the various possible scenarios, of between 18.1% and 18.8%, which is slightly better than the forecasts made in June.

- The inflation indicator for October (provisional data) reflects an increase in prices of 0.5% during the month, which further pushes the year-on-year price rate into negative territory (-0.9% compared to -0.5% and -0.4% in August and September, respectively). The goods and services referred to as the " special COVID-19 group" , which are those that continued to be consumed in the lockdown period[6] and which the INE continues to analyse on an individual basis, produced the following results: prices of goods belonging to this group increased 0.9% in October (1.6% year-on-year, 0.2 pp less than in September), while prices of services fell by 1.6%, representing an annual decrease of 3.4%. In a comparison with the euro area, harmonised CPI data for September reflect a gradual decrease in Spain's negative differential, from 0.1 pp in April and May to 0.3 pp at the end of the third quarter. In relation to the underlying inflation rate, which excludes the most volatile elements (energy and fresh food), the data show a decrease in the last 3 months, after having remained at very stable values during the first half of the year. Thus, between June and September, core inflation fell from 1.0% to 0.4%.

- The information obtained through the Ministry of Finance regarding public sector finances shows that the deficit registered up to August had amounted to €78.1 billion,[7] 7.07% of GDP, which represents an increase of approximately €53 billion compared to the same period in 2019.This sharp increase was the consequence of both the decrease in funds, especially taxes, and the increase in spending, deriving from the economic situation caused by the health crisis.[8] Looking to the end of 2020, the Bank of Spain's

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

[4] Specifically, 42% of the jobs lost between April and June have been recovered, a period in which more than 1 million jobs were destroyed.

[5] People affected by the furlough scheme (ERTE) are not included in the unemployment rate, since, in line with the Eurostat and International Labour Organization (ILO) methodology, they are considered to be employed.

[6] The goods belonging to this special group are: food, beverages, tobacco, household cleaning products, pet food and personal care products. Services are those related to housing (rent, supplies etc.), insurance, bank fees and funeral services.

[7] 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.

[8] Between January and September, the tax revenues of the central government fell by 14% overall, among which the decrease in proceeds from VAT of 14.3% and from personal income tax of 21.7% stand out. State expenditure, on the other hand, increased in the same period by 18.5%, as a result of the transfers made to social security and the autonomous regional governments.

forecasts would place the public deficit between 10.8% and 12.1% of GDP, around 1 pp worse than the June forecasts, while the IMF's calculations would place it at a higher figure, specifically 14.1%, or 0.2 pp more than the last estimate. Meanwhile, public debt, which was initially estimated at between 110% and 120% of GDP, has risen slightly in the latest Bank of Spain forecasts and, although in the most optimistic scenario it is still in this range (116.8%), in the most pessimistic scenario it would narrowly exceed it (120.6%). The IMF estimates a figure of 123%.

- As for households' financial decisions, data from the Financial Accounts for the first half of the year also reflect the significant effects of the pandemic on retail investors. The most obvious consequence is the increase in the household savings rate (due to what is known as "precautionary saving", which occurred in the middle of the 2008 financial crisis), which at the end of June stood at 11.2% of gross disposable income in accumulated one year data,[9] compared to 7.9% in the first quarter and 6.3% at the end of 2019 (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, 5.6% of GDP, the highest figure since 2006 (Figure 27). By type of asset, the divestment of term deposits and fixed income securities continued, which stood at 2.2% of GDP in year-on-year terms, as did the high volume of investment in means of payment,[10] at 6.8% of GDP, substantially higher than the percentages recorded in previous years. The figures also show that part of the household funds destined for savings were used to purchase shares and other equity stakes, and investment funds: 0.3% and 0.9% of GDP, respectively.

  Data from some household financial indicators for the third quarter point to a prolongation of the trend observed in the first half of the year, although it appears to have eased somewhat, at least with regard to deposits. Deposits increased during the quarter by a slight 0.1%, although in year-on-year terms growth stands at 7.2%, reaching €893 billion. This may reflect the combination of two opposing phenomena: on the one hand, the aforementioned precautionary savings and, on the other, divestment by the most vulnerable households, which have higher liquidity needs.

Context of low interest rates

- Monetary policy in the euro area continues to be conditioned by the effects of the pandemic on the economy; it has already forced the ECB to adopt measures in the first wave and the institution is preparing a new series of stimuli to face the second.[11] At first, the measures adopted by the ECB through asset purchase programmes were more focused on alleviating tensions on sovereign debt risk premiums of some economies in the euro area and mechanisms to facilitate the transmission of monetary policy. In a second stage these are mainly aimed at boosting the fragile and uneven recovery of the European economy, which is weakening once again as it begins to suffer the adverse effects of the second wave of the pandemic and the new restrictive measures associated with it.

[9] According to INE data, the household savings rate accounted for 31.1% of disposable income in the second quarter of the year, coinciding with the lockdown period, its highest value in the entire historical series and more than 10 percentage points higher than the previous high of 20.1% reached in 2009 in the previous economic crisis.

[10] Cash and demand deposits.

[11] As stated by its President at the end of October: "The ECB was there during the first wave of the virus and will be there during the second".

The European monetary authority pointed out at the end of October[12] that its governing council will recalibrate its instruments in December "to ensure that financing conditions remain favourable to support the economic recovery", and therefore the markets expect new and significant increases in the size of its PEPP stimulus programme. It also indicated that all monetary policy tools, including bank financing operations (TLTRO-III) are potentially susceptible to being recalibrated and, therefore, to extending and improving their conditions. Therefore, the current measures are still[13] oriented towards favouring the financing and growth of the real economy, although it is foreseeable that they will be modified to adapt to the new environment.

This new stimulus package could be designed using several tools: expanding the size of the Pandemic Emergency Purchase Package (PEPP) and its possible extension beyond June 2021; expansion of the size of the current debt purchase programme (APP); injections of liquidity to the banks to guarantee the flow of credit to the real economy (extension of the term of extraordinary conditions or relaxation of collateral conditions so that entities can request more funds), and further decreases in interest rates going beyond -0.5% to encourage banks to grant credit.[14]

Debt purchases, together with the rest of the ECB's ultra-expansive monetary policy measures, have allowed interest rates to remain at very low levels in all sections of the curve and even to have been further reduced in the longer dated sections. Thus, many agents anticipate that the unprecedented intervention of central banks due to the pandemic will lead to rates continuing at negative values in the coming years. In the USA, the Federal Reserve is following a similar policy aimed at boosting economic recovery and fostering employment,[15] and its Chairman has given approval for interest rates to remain unchanged for at least the next three years.

- In this context, the risks already included in previous Notes remain in force, although some of them have been accentuated: i) maintenance of search for yield strategies, which increases investors' propensity to acquire assets with higher expectations of return, given the lack of profitability and increasing costs of maintaining risk-free assets, but for which there is an intensification of volatility (markets or assets with more volatile returns, such as emerging markets or cryptocurrencies), credit risk, the lowest credit ratings (subordinated and high yield debt) and liquidity is reduced (private equity funds or real estate assets), and ii) intensification of the difficulties of the banking sector to increase its slight profitability in a context of economic slowdown and growing business difficulties, delinquency and upside risks, which provides an additional incentive to take greater risks to obtain an additional return. Despite all this, some vulnerabilities are being moderated by the increased difficulty experienced by some agents in taking on debt and the removal of incentives for them to borrow in a context of economic recession and greater

[12] The ECB reported, after its governing council meeting on 28 October, that at its meeting on 10 December it will "recalibrate all the instruments" of monetary policy.

[13] These measures include the PEPP (Pandemic Emergency Purchase Programme) and APP (Asset Purchase Programme), the establishment of the marginal deposit facility at -0.50%, the third round of financing to banks – TLTRO-III (Targeted Longer-Term Refinancing Operations) – and the extension of the term from 2 to 3 years with a rate of 50 bp below the average interest rate applicable to the main Eurosystem refinancing transactions between June 2020 and June 2021, as well as the 7 long-term refinancing transactions at a cost of -0.25% contained in the PELTRO programme (Pandemic Emergency Longer-Term Refinancing Operations).Thus, the ECB awarded €174.5 billion to 388 financial institutions in the fifth TLTRO-III liquidity auction held at the end of September, which accumulated around €1.7 trillion awarded in the set of 5 rounds carried out in under the current programme, in addition to another €1.01 billion at the beginning of October in the framework of the fifth long-term refinancing operation of the PELTRO programme.

[14] These would presumably be accompanied by a readjustment in the exemption from the excess liquidity penalty, which now stands at six times the minimum mandatory reserves.

[15] The Federal Reserve considers as primary objectives to help the recovery and promote employment, so its new monetary policy strategy opts for the easing of inflation. It has set an average of 2% inflation as a long-term objective, so periods of low inflation can be offset by others in which the indicator is above 2%, without this resulting in a rise in interest rates.

restrictions on access to credit, while the low cost of financing of the indebted agents favours the control of NPL ratio.

Sources of political uncertainty

- One of the biggest sources of political uncertainty in Europe continues to be Brexit. Although at the time of its consummation, on 31 January 2020, the avoidance of a no-deal exit by the United Kingdom from the European Union (EU) was achieved, for the moment the framework that will govern the relationship between both economies at the end of transition period on 31 December 2020 has not been established. With less than two months to go before the definitive exit, the negotiations between both parties, already tense to start with, are being further affected by the current health and economic situation.[16] In fact, the UK prime minister recently demanded a fundamental change in the European position to achieve a trade deal and admitted being prepared for a no-deal exit. The EU advocates continuing to work to achieve this, but also agrees that it will not be achieved at any price and that there are serious differences between the two sides. There are key points for both sides that are hindering the talks, such as the level playing field required by the European Commission,[17] the aspects relating to fisheries, or the governance of the agreement and the jurisdiction of the European Court of Justice. Although there is still some time left to resolve the discrepancies between the two areas, there is a growing likelihood of a disorderly departure by the United Kingdom,[18] which could lead to further turmoil in the financial markets. However, the results of the recent US elections could be a factor that increases the incentive for the United Kingdom to reach a deal.

- As a result of the coronavirus crisis, tensions arose within the EU about how to deal with the economic impact on member states. Finally, in mid-July the EU members reached a consensus by which they established the constitution of an economic reactivation fund endowed with €750 billion to mitigate the damage caused by the coronavirus.[19] However, the receipt of these funds by the different countries is not immediate (it is estimated that the first aid packages could be received in mid-2021). Approval by the European Parliament is a lengthy process[20] as is the study of the projects that are presented to obtain funds.[21] For the time being, the Spanish Government has only requested access to the subsidies from this fund and will leave the loans for a second phase. Looking ahead, new divergences between European partners cannot be ruled out, especially if it is necessary to adopt new measures, although this scenario does not seem the most likely one at present.

[16] In practice, negotiations on the future treaty must be concluded by around November, since the agreement will need to be ratified in Parliament.

[17] This is intended to ensure that the United Kingdom does not offer unfair competition to Europe by approving advantageous taxation, lowering environmental standards or creating more flexible public aid that could induce European companies to relocate.

[18] Should there be a no deal exit from the EU, the United Kingdom would have to trade with the EU under the rules of the World Trade Organization (WTO).

[19] The fund will be divided into €390 billion in non-reimbursable direct aid and €360 billion in loans (with a maximum repayment term until the end of 2058).

[20] On 10 November, the European Parliament and the Council reached an agreement on the budget of the European Union until 2027 and thus the release of the recovery fund. It is expected to be voted on and approved in the plenary session of Parliament in the following weeks. Subsequently it has to be approved in the Member States.

[21] These direct aid packages will also be subject to various control mechanisms. The national aid plans are expected to be approved by qualified majority (in any case without the right of veto). The European Commission will evaluate the authorisation of the disbursement and will request the prior opinion of the Economic and Financial Committee, which could raise objections, and these could in turn be escalated to the European Council. Furthermore, if, exceptionally, a Member State should consider that deviations are occurring from the objectives to which the funds need to be allocated, the President of the European Council could be asked to address the matter.

- On 3 November, the US presidential elections were held, in which the Democrat candidate Joe Biden was the winner, after several days of recounts. The fact that the outgoing president has not formally accepted his defeat, initiating a judicial process in which the legality of the process is being brought into question, is prolonging a situation of high uncertainty that may end up spreading to other economies. Meanwhile, the president-elect, who does not take office until 20 January of next year, is taking the first steps for the transition of government, which will not take place until the General Services Administration certifies the winner.

  The next US government faces several challenges, some of which, if resolved successfully, could mitigate risks to financial markets:

  – In health matters, the first challenge relates to containing the expansion of COVID-19, which is hitting the United States hard. To this end, a committee of experts has been created to address the health crisis and free access to tests and the effective distribution of treatments and future vaccines have been announced, all in a context of seeking to reestablish the country's relationship with the World Health Organization (WHO).

  – In the area of trade, the conflicts with China and the EU stand out. Regarding the trade war with China, after the signing of the first phase of the trade agreement between the two powers, it is expected that the rapprochement of positions will continue, with the possibility of reaching a full agreement through dialogue. It is possible that trade tensions between the two powers may not dissipate, as they compete to dominate the same strategic areas, a possibility that could generate turbulence in the markets. Regarding the conflict with the EU over state aid granted in the past to Boeing and Airbus, whereby the WTO authorised both the United States and the EU to impose sanctions, it should be remembered that the United States imposed tariffs about a year ago that affect a variety of European exports and that the EU's response – following the recent WTO ruling – was to announce in early November the immediate imposition of taxes on US products worth €3.3 billion (about €4 billion). Expectations about this conflict are also positive, in view of recent statements made by the Commissioner for Trade of the European Commission, which point to some informal contact with the transition team of the US government.

  – In terms of climate change, it should be remembered that, on 4 November, the United States formally left the Paris Agreement, which seeks to reduce greenhouse gas emissions. The president-elect has already expressed his intention to rejoin the accord on the first day of his term. However, there may be setbacks in the preparation of plans to meet the emission cutting targets, since the majority in the Senate and, consequently, support for these projects, will not be known until January.

- At national level in Spain, the main political risks are related to coordination between the different regional administrations in the management of the health crisis, as well as parliamentary fragmentation, which may make it difficult to reach agreements. The new state of alarm declared in the country aims to give a common response to the management of this new wave of infections. The increase in the incidence of the virus at national level has led to restrictions similar to those observed in other European countries, which are affecting the mobility of inhabitants in most towns and include curfews and limitations on closing hours for the hospitality business, among other measures. The impact of the new limitations is uncertain, but it may delay the recovery of some businesses and sectors and keep uncertainty in financial markets at high levels.

Other sources of uncertainty

- During this last year and as a result of the COVID-19 pandemic, the increase in virtual activities worldwide, the generalisation of teleworking and relationships conducted by remote means have substantially increased the risk of cyber attacks. The sudden shift from office work to remote work may have affected the ability of companies and regulators to manage and monitor risk, and while online fraud and scams are nothing new, today's environment may allow them to proliferate. Therefore, in this context, cybersecurity has become a fundamental aspect to prevent this operational risk.[22] If it materialises, it could change how companies work and spread to different sectors and services and could even affect financial stability, if confidence in the markets is undermined as a result of cybercrimes directed at, for example, investors or financial intermediaries. The normal development of business activities and the continuity of business in an increasingly interconnected system depend on an effective prevention of this risk to essentially avoid the loss of confidential data or crashes on information systems.

- The second wave of coronavirus is forcing many countries to reapply lockdown measures, in some cases similar to those adopted in March to slow the spread of the virus.[23] The large increase in the number of new cases and daily deaths, as well as the fear of hospitals becoming overwhelmed, means that uncertainty remains at high levels, which can cause new episodes of turbulence in the markets. Although the recent announcement made by Pfizer regarding the progress made on the vaccine it has under development and its agreement with the EU to provide 300 million doses in the future,[24] seems to be the start of a new phase in the fight against the virus, although the exact moment in which the vaccines will be available remains uncertain. The risk of a temporary extension or tightening of lockdown measures remains high and could further deteriorate the global economy, which is still recovering from the first wave of the virus.

[22] According to the study "Cybersecurity and cyber risk management in Spain", prepared by Aon in June, after the declaration of the state of alarm in March, the number of cyber risk insurance policies taken out grew by 41%.

[23] Among the main measures are the close down of cities, curfews, the halting of activities and the limitation of the movement of individuals.

[24] Of these, Spain would receive 20 million, which would be used to vaccinate 10 million people (the administration of 2 doses is necessary).

Risk categories

Market risk: red

- The main international equity markets, which had suffered sharp falls until April as a result of the abrupt decline in economic activity and the lockdown of activity in many regions to deal with the pandemic, ended the first half of the year with moderate setbacks, after a partial recovery that allowed them in some cases to offset a significant share of their accumulated losses. However, the rises in the markets were subsequently diluted as both the IMF and the main central banks and international economic organisations predicted a sharper contraction and a weaker recovery than expected, which became evident as the third quarter advanced and the spread of a second wave of the pandemic was confirmed.

  The negative data from this second wave of infections forced governments and local authorities to withdraw some of the reopening measures adopted in recent months, which led to new economic difficulties and dampened recovery expectations, and was reflected in losses on most of the European stock markets in the third quarter. This situation became more evident in October, when numerous authorities found it necessary to announce new restrictions of various kinds. In the first days of November, the markets underwent a radical turnaround with significant gains[25] following the positive data on US economic performance and the initial results of the elections in that country,[26] buoyed by investor optimism after the announcement by the pharmaceutical company Pfizer of the effectiveness of its vaccine against the virus (which is expected to contribute in the coming months to reducing restrictions on mobility and accelerate the expected economic recovery).

- In this context, as mentioned above, the main stock market indices showed an uneven performance in the third quarter,[27] followed by declines in October[28] and strong increases in November. The latter allowed the European indices to recover part of the losses accumulated in the year.

  All the US indices showed a significant appreciation in the third quarter, which extended to the fourth, leading all of them to reach new all-time highs. Thus, the Dow Jones index, with a greater weight of companies from the traditional economy, mainly industrial and financial, managed to offset the losses it recorded and accumulated a gain of 2.2% in the year to date. The S&P 500 index,[29] which is more general in nature, saw a rise of 9.9% in the year, since the good performance of its more technological companies has now been joined by the more cyclical stocks, which would benefit most in a recovery scenario. Likewise, the Nasdaq technology index has increased its annual gain to 30.6%, after rising more than 50% between April and November thanks to the good performance of large

[25] The markets are showing significant increases in the fourth quarter (based on data up to 9 November), which are more significant in the European indices, with gains of between 11.1% for the Ibex 35 and the French CAC 40 and 2.6% for the German DAX 30.

[26] In addition to changes in the management of trade policy or with respect to climate change, the markets are discounting the approval of a major package of fiscal aid aimed at alleviating the effects of the pandemic in a context of certain limitations to address far-reaching reforms by the foreseeable division in the legislative chambers.

[27] The main world stock indices performed unevenly in the third quarter, with rises in the indices of the United States, Japan and Germany – which ranged from 11% on the US Nasdaq technology index to 3.7% on the German DAX 30 – and declines in most of the European indices (which were between the -7.1% on the Ibex 35 and -1.1% on the Eurostoxx 50).

[28] The losses extended throughout the month of October in all European markets, with falls ranging between -9.4% for the DAX 30 and -3.9% for the Ibex 35.

[29] This index reached its historical maximum on 9 November at 3,550.5 points. The companies with the greatest weight in the index as of 30 October were from highest to lowest: Apple, Microsoft, Amazon, Facebook and Alphabet (Google), which represent a capitalisation of more than 22% of the index.

technology companies,[30] which have obtained higher-than-expected profits on the back of the new forms of consumption, work and leisure adopted in the context of the crisis. However, the fall of some share prices of these companies[31] following the announcement of the effectiveness of the Pfizer vaccine suggests that although some of the new consumer habits and behaviours will persist after the introduction and administration of the vaccine, the growth prospects for these companies may deteriorate as social distancing measures are relaxed.

In Europe, most of the stock markets registered setbacks in the third quarter and in the first few weeks of the fourth quarter, which reversed dramatically in November, supported by the factors previously discussed. The gains registered in November were more intense in the indices[32] in Spain, France and Italy, where the drop in GDP has been greater. Advances in European indices in the second half of the year[33] ranged from the 0.3% of the UK FT 100, affected by the uncertainties surrounding the Brexit resolution, to 8.1% of the French Cac 40. After the rise in November, the accumulated losses for the year to date have fallen to a range of -1.2% for the German Dax 30 to -21.9% for Spain's Ibex 35. European markets continue to have a lower weight of technology companies in their indices and a greater dependence on companies from the traditional economy, which are more vulnerable in a context of greater expected falls in GDP.

- In Spain, the Ibex 35, which had accumulated heavy losses until April and from which it had barely recovered, continued to see declines the third quarter, which were consolidated in October when the index reached its lowest level since March. However, in November it led the gains among the European indices[34] and in a single day saw the highest increase in the last decade,[35] given the prospects for a faster recovery than initially expected, which would favour, above all, the sectors most affected by social distancing measures, which have significant weight in the Spanish economy, such as tourism and hospitality. Its performance in recent months has been hampered by the weak prospects for economic activity in the coming year, which are more unfavourable than for the rest of the large European economies, added to which there have been uncertainties surrounding the expansion of the second wave of the pandemic.

  Despite the good performance of the Spanish index in November, the accumulated losses in the year stood at -21.9%,[36] remaining above those of the European benchmark indices, with declines ranging between -1% and -12%. The different composition of the Spanish indices compared to their European counterparts – with a greater weighting of companies from the financial and consumer services sectors such as leisure, hotels and tourism, which have been more sensitive to the effects of the outbreaks – has determined a more unfavourable performance compared to their European rivals. The latter are favoured by the greater weight of cyclical industrial companies, which would be the first to benefit

[30] The shares of the main US technology companies, known as FAANG (Facebook, Apple, Amazon, Netflix and Google) posted gains of 22%, 28%, 41%, 3% and 24% respectively between July and 9 November, which extend to 11%, 58%, 70%, 41% and 6% in the year to date.

[31] Some technology companies such as Zoom Video Communications (-17.3%), Netflix (-8.6%) and Amazon (-5%) experienced falls in their share prices after data on the effectiveness of the vaccine was made public.

[32] The indices of the Spanish (Ibex 35), French (CAC 40) and Italian (MIB 30) stock exchanges rose by around 16% in November (with data up to 9 November).

[33] With data up to 9 November.

[34] Up to 9 November, it gained 15.6% (the same as the Italian MIB 30), only behind the French CAC 40 index, which increased 16.2%.

[35] The Ibex 35 rose by 8.57% in the session of 9 November, its highest daily gain since May 2010.

[36] With data up to 9 November.

from a recovery. We should also point out the significant presence of Spanish companies in Latin America, a region seriously affected by the pandemic.

The strong gains on the Spanish stock market in November have allowed most of the sectors to show an upward trend in the second half of the year. The amount of the gains varied greatly between sectors and between the companies in each sector based on the impact of a foreseeable improvement in the health situation and the economic impact on their businesses. The greatest rises were made by companies producing raw materials and industrial and engineering goods, as well as companies in the textile (Inditex) and consumer goods sectors. Also noteworthy were the gains made by companies in the consumer services sector, driven by the airline company IAG and companies in the tourism and hospitality sector,[37] which had been affected by the loss of the tourist season and the additional drop in activity due to the recent outbreaks. Their recovery prospects have now improved for 2021 as a result of a likely reduction in mobility restrictions. Likewise, it is worth underlining the positive performance of small-cap companies (13.7%), which have marked gains in the year to date thanks to the presence of some companies from the renewable energy and pharmaceutical sectors.

The largest setbacks were found in the telecommunications sector, where the main company (Telefónica) is still subject to an environment of strong competition and the difficulties faced by its businesses in Latin America, and the oil sector, in which the largest oil company (Repsol) continues to be weighed down by low crude oil prices[38] and falling demand. Also, despite the announcement of the merger[39] between Bankia and CaixaBank, which temporarily boosted bank share prices, and the strong rise in November, the banking sector[40] continued to show slight losses in the second half of the year,[41] in a context of declining business activity and narrower margins (favoured by the continuation of the negative interest rate environment) and rising delinquency and risks. On the other hand, the delisting of Telefónica and BBVA from the European stock market index Eurostoxx 50[42] at the end of September contributed to the decline in the share prices of these companies and their corresponding sector indices, as it led to their exclusion from the portfolios of many international investors, investment funds and exchange-traded investment funds (ETFs) that replicate the main market indices.

- The fresh decline in share prices, together with greater stability in corporate earnings expected for the coming months, caused the price-earnings ratio (PER) of the Ibex 35 to decrease from 16.8[43] in mid-July to 16.4 in October,[44] while its historical average is 13.5 (Figure 4). The value of this ratio has been subject to significant adjustments throughout the year, which are expected to continue in the coming months as earnings estimates more accurately reflect the impact of the pandemic on business results.

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[37] The main companies linked to the airline and tourism sector accumulated gains in November: IAG (35%), Meliá (42%), NH Hotel Group (21%) and Aena (22%), which significantly reduced losses for the year to 80%, 43%, 44% and 17%, respectively.

[38] The price of oil remained around US$41 dollars a barrel in the third quarter and was even below this figure in October. The prices of oil futures for the coming months do not anticipate significant increases.

[39] Bankia and CaixaBank announced talks at the beginning of September for a possible merger, which the Boards of Directors of both entities approved in the latter half of the month.

[40] The capitalisation of Spanish banks, which had traditionally been the largest in Europe, has fallen to third place behind French and Italian banks.

[41] In the cumulative figure for the year to date, the decline in the banking sector stands at 42.7%.

[42] Both companies left the index, of which they had been part since its inception, on 18 September, along with Societé Générale, Fresenius and Orange.

[43] In the same period, the PER of the US S&P 500 stock index and the European Eurostoxx 50 index rose to 22.1 and 16.9 times, the highest levels since 2001 and 2002, respectively.

[44] The PER ratio reached a value of 18.1 times in August, the highest since 2002.

- The international debt markets, which showed notable decreases in the interest rates and risk premiums of their assets in the second quarter as a result of the exceptional monetary easing measures adopted by the central banks,[45] in the third and fourth quarters showed further decreases in public debt rates and, to a lesser extent, in part of the corporate debt, until they were at levels lower than those seen at the beginning of the year and close to their historical lows. This trend is explained by the position held by central banks and by the tendency among some investors to acquire safer assets. Regarding the first factor, it is worth highlighting the successive statements by members of the monetary authorities indicating that rates will remain at very low levels for a long period of time, together with the recent statements by the President of the ECB indicating that the institution will recalibrate its monetary policy in December. The second factor is explained by the uncertainty in the markets, which leads to increased purchases of debt that comes usually from the divestment of shares, a process known as a "flight to quality".

- In this context, the yields on European public debt at the beginning of November in most cases were at close to their historical lows. For 10-year debt, yields were negative in Germany, the Netherlands, France, Belgium, Austria, Finland and Ireland (around 0.5% in the first two); lower than 0.25% in Spain and Portugal, and only higher than 0.5% in Italy and Greece. All European economies accumulated decreases in the yield on their long-term debt during the year, ranging between 28 basis points (bp) in Spain and Portugal and 71 bp in Italy.[46] The volume of Spanish government bonds held in the ECB's portfolio stood at €281.4[47] billion at the end of April.

  In the case of corporate debt yields, a significant variation can be observed depending on the asset rate, the issuer's rating and its status as eligible for purchases in any of the ECB's programmes. Despite the fact that in previous quarters those issues with a lower credit rating or higher subordination ranking presented significant upticks in the returns demanded by investors, the search for yield process has caused new increases in their prices and falls in their yield.

- High market risk continues to be identified in debt assets, especially in the case of high yield corporate debt with lower ratings and subordinated debt, as they are not directly supported by the ECB and their liquidity tends to be lower. Therefore, in the current context of slowdown in economic activity, there could be increases in their required return. These rate hikes would affect the most indebted companies to a greater extent and they could have difficulties in obtaining refinancing at a reasonable cost, but could also be extended to the most vulnerable economies with greater fiscal imbalances, which have also raised their borrowing rates to cope with the pandemic. In the latter, therefore, there is the need to reduce fiscal imbalances in the medium term, once the health crisis has been overcome and the ECB embarks on its exit strategy and begins to withdraw the stimulus programmes. In all, it is worth considering the effects that a possible rebound in risk premiums and, as a result, a fall in the prices of riskier assets, could have on

[45] These measures include extensive public and private debt purchase programmes in secondary markets. At the end of the second quarter the ECB held around 29% of the public debt of the four largest euro area economies on its balance sheet, compared with 19% in December 2019. Additionally, at the end of October the ECB's asset purchase programme (APP) had assets amounting to €2.87 trillion, including public debt (€2.3 trillion), corporate debt (€243 billion), mortgage backed securities (€286 billion) and securitisations (€29.4 billion). To this amount we need to add the €565.6 billion accumulated at the end of September by the Pandemic Emergency Purchase Programme (PEPP), which included public debt (€510 billion), commercial paper (€32 billion), corporate bonds (€20.4 billion) and mortgage backed securities (€3.1 billion). A part of corporate debt purchases also takes place in primary markets, being more significant in the case of corporate bond and commercial paper purchases.

[46] The average decline is 40 bp.

[47] This amount reflects the purchases of public debt acquired under the Public Sector Purchase Programme (PSPP), which reached €288.3 billion at the end of October and the purchases made within the Pandemic Emergency Purchase Programme (PEPP), which came to €61.03 billion at the end of September, so that the Spanish public debt in the hands of the ECB represents around 30% of the balance of the long-term debt securities of the State.

investors' portfolios and, in particular, from the perspective of the supervisory tasks of the CNMV, of certain funds (especially fixed income funds), which may have some assets of this type in their portfolio. It is also worth assessing exposures to assets with very long maturities, the prices of which are highly sensitive to changes in the yields demanded.

Credit risk: green

- The performance of premiums on sovereign risk and the private sector has been very similar since July, although a slight upward trend was observed in the case of private entities in October. While the continuity in the stimulus packages approved by the ECB to overcome the COVID-19 crisis has continued to keep risk premiums at low levels, the uncertainties generated by the second wave of the pandemic and the deterioration of economic expectations led to a slight increase in the risk premium for Spanish private sector issuers. In this context, the sovereign risk premium – valued as the difference between the yield on 10-year public debt in Spain and Germany – stood at 77 bp at the close of this Note (87 bp in July), significantly below the figure of 156 bp reached in mid-April, during the most difficult moments of the pandemic, and only 11 bp above the levels recorded at the beginning of the year (Figure 11).

  The private sector risk premium has shown behaviour similar to that of public debt since July, but the development of the pandemic in October, with the establishment of lockdowns in many countries in the European environment, led to a slight increase in these risk premiums in both the financial and non-financial sectors. In the case of financial corporations, the risk premium increased from 90 bp in mid-October to 100 bp at the end of that month (97 bp on average in July). The first mergers between entities are starting to take place in the banking sector[48] in a context of margins under pressure from the low interest rate scenario, foreseeable increases in NPL ratio levels and the recommendation by the national supervisor not to distribute dividends. As mentioned in previous issues of this Note, the facilities for obtaining financing from these entities, derived from the monetary policy carried out by the ECB, should be highlighted as positive.

  In the case of non-financial companies, the credit risk premium experienced a similar performance to that of financial institutions, standing in October at 72 bp. (65 bp at the end of July). These companies have also benefited from the expansion of the ECB's purchasing programmes.[49]

- The information on changes in the credit ratings of Spanish companies from June to September reveals that there is still no notable deterioration in the credit quality of Spanish issuers in the context of the crisis. Most Spanish debt remains high quality investment grade debt (96.5% of the total outstanding balance) and, in addition, the proportion of investment grade debt that is in the category one notch above high yield (BBB- for Fitch and S&P or Baa3 for Moody's) has stabilised. This debt, which represented 3.2% of total outstanding debt in March, increased to 4.4% in June[50] and it remained at 4.5% in September. This amount is small and relatively similar to the total balance of high yield debt, which accounts for 3.5% of total outstanding debt (3.4% in June and 3.5% in March).

[48] See footnote number 39.

[49] This purchase programme (Corporate Sector Purchase Programme, CSPP), which has been extended to all issuers meeting the conditions of the programme (minimum rating BBB-), includes purchases of corporate debt. By the end of October, as previously mentioned, €285 billion of debt had been purchased under this programme, more than 37% of it acquired on the primary market.

[50] For more details on changes in the credit ratings of Spanish debt, see the article "Credit ratings of Spanish debt assets since the beginning of the COVID-19 crisis", published in the *CNMV Bulletin* corresponding to the third quarter of 2020.

- Financing for non-financial sectors[51] of the economy continued as in the first half of the year, with a notable expansion in financing to businesses and a decline in lending to households, which once again showed negative values as a result of the effects of the coronavirus on the economy. In the latter case, the contraction reached 0.7% year-on-year in September, with a decrease of 1.5% in loans for home purchases and growth in consumer credit that slowed to 1.7% (as against 2.2% in June and 3.9% in December 2019). The total financing balance of non-financial companies increased considerably (4.4% in September) mainly due to the increase in financing via loans (8.2%), which reflects the Search for Liquidity of many companies to face the current situation and the facilities granted by the programme of public guarantees for loans to non-financial companies.[52] On the other hand, the financing of companies through the issuance of debt increased again in September (4.1% year-on-year), although at the slowest rate of the whole year (except for May, when there was a slight contraction of 0.03%) and well below the levels registered before the crisis (15.7% in February 2020 and 13.7% in December 2019). Finally, the balance of foreign loans fell 1.2% in September, consolidating a trend that has been repeating over the last 3 months and that had not occurred since May 2016.

Liquidity, financing and fragmentation risk: yellow

- The fixed income debt issues registered with the CNMV between July and October totalled €27.69 billion, 7.2% above those made in the same period of 2019 (€25.84 billion). The issue of asset-backed securities and commercial paper stood out, representing 32% and 29% respectively of total issues. The latter continue to be favoured by the guarantee programme[53] for non-financial companies conditional on the issuance of these instruments and their listing on the AIAF or MARF fixed income market.[54] Additionally, the issuance of regional covered bonds of Bankia, BBVA and Banco Santander for a combined amount of €4.4 billion stood out. Likewise, so far this year debt issuances stood at €84.34 billion, 38% more than in the same period of 2019, which reflects the need to attract sufficient financial resources to face the uncertainties and the economic crisis, taking advantage of the positive market conditions. Issuances made by companies abroad fell by 8.3% year-on-year until September (€71.51 billion), with the issuance of commercial paper representing 48% of the total. This represents a change in the trend observed in previous years, marked by the dynamism of foreign issues.

- The financing capacity of the Spanish economy stood at €1.5 billion in August,[55] well below the €3.8 billion registered in the same period of 2019, a decrease that is a consequence of the slowdown in tourism. On a cumulative basis for the past 12 months, the financing capacity of the Spanish economy up to August stood at €16.9 billion, below the €30.3 billion reached up to the same month in 2019. On the other hand, capital inflows[56]

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

[52] As of 15 October 2020, with the State Guarantee Line, approved in Royal Decree-Law 8/2020, of 17 March, a total of 842,614 transactions corresponding to more than 550,500 companies had been guaranteed. The total amount guaranteed was €79.04 billion, which has allowed companies to receive €104 billion in financing.

[53] In accordance with the guarantee programme recently established in Royal Decree-Law 15/2020, of 21 April, on urgent complementary measures to support the economy and employment.

[54] The amount of commercial paper issued from July to October in the MARF exceeded €2.5 billion (€6.94 billion so far this year). The issuances of commercial paper in this market by companies such as El Corte Inglés, MásMóvil and Sacyr have benefited from the guarantee programme established.

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

[56] The data reflects the financial account excluding the Bank of Spain.

were €800 million in August, although on a cumulative basis for the past 12 months there was an outflow of €54.2 billion.

- Household deposits grew by 7.2% year-on-year in May, while those of non-financial companies increased by 14.1%, reaching €893 billion and €296.4 billion respectively, the highest values in the historical series. Both households and companies have continued to accumulate liquidity in deposits (between them, €85.7 billion more between the end of February and September) to meet the needs that could arise in a context of economic recession and high uncertainty about their future earnings,[57] as well as the absence of profitable investment alternatives with little risk.

- Average trading in the electronic market stood at €1.25 billion a day in the third quarter (a volume that was maintained in October),[58] 18% less than in the same quarter of 2019 and the lowest volume in recent years. The fragmentation of the trading of Spanish shares intensified again and led to a significant decline in the market share of Bolsas y Mercados Españoles (BME), which stood at a new all-time low of 52.1%[59] (of trading subject to market rules) against other trading venues other than the home market. This proportion is 0.1 pp lower than the previous historical low seen in the first quarter,[60] in a context of some normalisation of volatility in the markets.

  Trading carried out by systematic internalisers, which is a modality not subject to market rules, showed in the third quarter of the year a proportion close to 15% of the total trading in Spanish securities.[61] This proportion has remained relatively stable in the range of 15-18% in the last 2 years.

- 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 restrictions established by the CNMV for short-selling transactions,[62] has been improving progressively since the last part of the first half-year, although it continues to reach values higher than those existing before the start of the crisis. In the case of the sovereign bond, the bid-ask spread (yields) increased slightly during most of the period, thanks to the intensity of the ECB's purchases, which promoted market liquidity. The range is low in absolute terms (Figure 15), but significant in the current environment of very low rates, that is, in relative terms.

- Interest rate differentials between loans to Spanish companies and those in the euro area improved for loans of more than €1 million and, to a lesser extent, for loans of lesser amounts. The former stood at 7 bp in September (50 bp in May), while the latter fell to 4 bp (down from 37 bp in May), which means it is at its lowest level in the last 6 months. On the other hand, the Bank Loan Survey[63] for the third quarter of the year shows a general contraction in the supply of credit and a tightening of credit standards for all

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

[58] Preliminary data for October show that the average daily hiring stood at €1.25 billion, 38% less than in the same period of 2019.

[59] Preliminary data for October show that BME's share stood at 52.5%.

[60] The market share of trading venues other than the home market reached 47.8% in the first quarter of the year, favoured by the environment of high volatility, which contributed to increasing algorithmic and high-frequency trading operations, which tend to take place mainly in trading venues other than the home market.

[61] Defining total trading as the sum of trading subject to market rules and that carried out by systematic internalisers.

[62] The CNMV kept in force until 18 May its restrictions on the establishment or increase of net short positions on shares admitted to trading in Spanish trading venues for which it is the competent authority. After lifting the restrictions, the CNMV conducted a study to determine what the impact of this measure had been on indicators related to market efficiency. The conclusions of this study can be found in: http://www.cnmv.es/DocPortal/Publicaciones/OTROS/Informe_ventas_en_corto_23072020.pdf

[63] The survey was conducted by the ECB between 21 September and 6 October at 143 banks in the euro area.

types of loans, both in Spain and in the euro area, as a consequence of the increase in perceived risks. Demand for credit from businesses declined in both areas following a record rise in demand for emergency liquidity to cope with the pandemic in the second quarter, while demand for mortgages grew in both areas as there was an adjustment after the lockdown period. Demand for consumer loans continued to decline in Spain, but grew in the euro area. Banks expect the conditions for both business loans and mortgages to be even more severe in the fourth quarter, due to uncertainties about the economic recovery and the duration of the fiscal stimulus measures and also because demand for credit from companies and for consumption is increasing.

Risk of contagion: orange

- The correlation between the daily returns of the different types of Spanish assets has been declining since July, although it is at levels that are much higher than those observed at the beginning of the year (around zero, see Figure 31). The median of these correlations reached a maximum of 0.75 in mid-March as a result of the coronavirus outbreak and since then it has been gradually decreasing to stand at 0.33 at the end of October. This value is higher than the average recorded for the whole of last year (0.19) and would be closer to the average values of the last decade (0.5). Following this trend, the maximum value of the correlations has also decreased: from 0.90 in mid-July to 0.62 at the end of October, as well as the minimum value, which stands at -0.08 compared to 0.08 in mid-July; however, it remains above the records seen at the beginning of the year (-0.37 at the beginning of February). The current correlation levels are the result of the uncertainties surrounding the COVID-19 crisis, which have deteriorated economic expectations and transferred risks to the different types of assets (shares, debt and credit). Although these correlation levels have decreased in recent months, the trend could be reversed if the health crisis should worsen substantially in the coming months. Higher levels of correlation lead to an increase in the chances of contagion among different asset classes and make it more difficult to diversify portfolios.

- With regard to movements in EU public debt assets, the correlation between the yield on Spanish sovereign bonds and that of the bonds of core EU countries increased considerably relative to the levels observed in July. At that time it was around 0.47 and since then it has gradually risen to the figure of 0.92 reached at the end of October. The upward trend was somewhat irregular, as a first rapid rise was observed until the end of August, when it stood at 0.89, after which there were some fluctuations. The increase in this correlation originates, above all, in the indicators related to German and Dutch bonds. The correlation between the yield of the Spanish sovereign bond and that of the peripheral countries remains at very high values, which point to the identification of financial vulnerabilities common to these economies (see Figure 32). However, within these high levels, there was a slight decrease in this indicator, which went from 0.96 in July to 0.91 at the end of October, marking intermediate lows of 0.86.

Market risk: red

Figure 3. Stock market prices

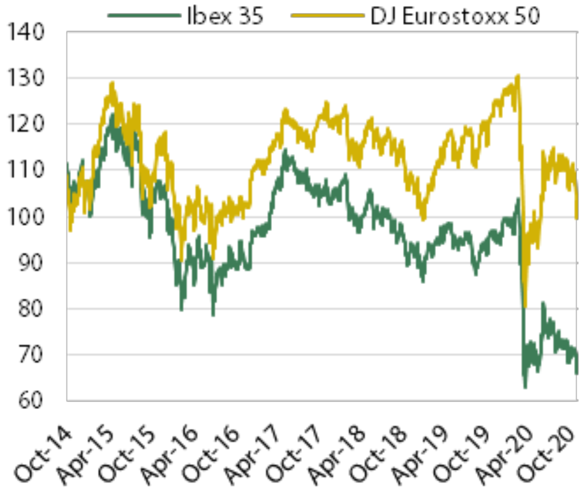


Figure 4. Price-earnings ratio (PER)

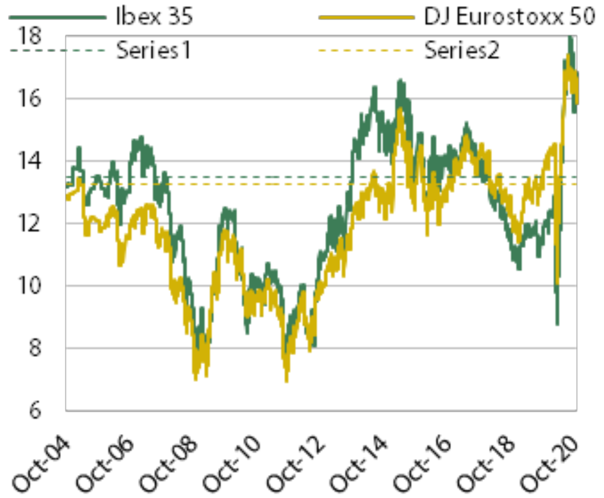


Figure 5. Short-term interest rates (3 months)

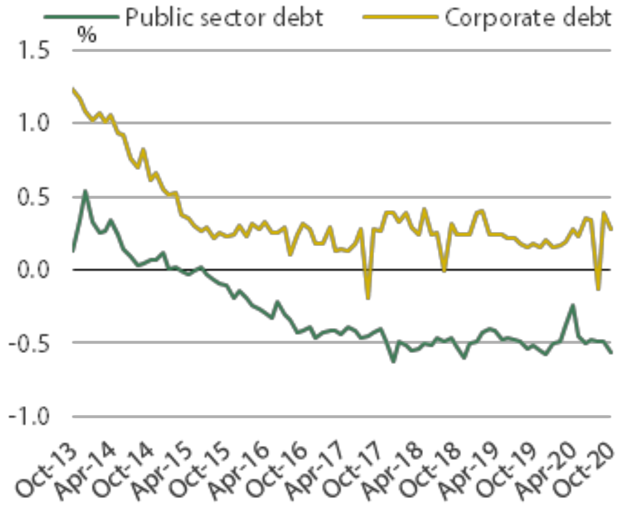


Figure 6. Long-term interest rates (10 years)

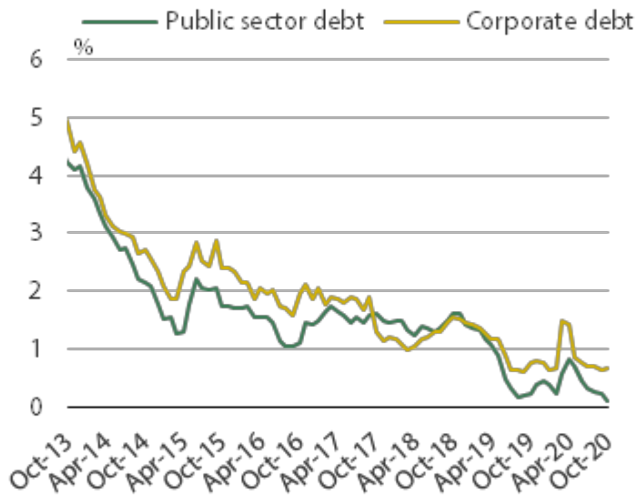
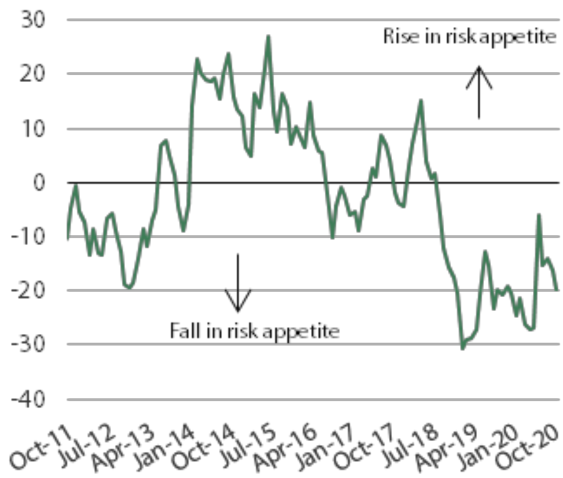


Figure 7. Oil price

Figure 8. Risk appetite (State Street)



Credit risk: green

Figure 9. Financing of the non-financial sector

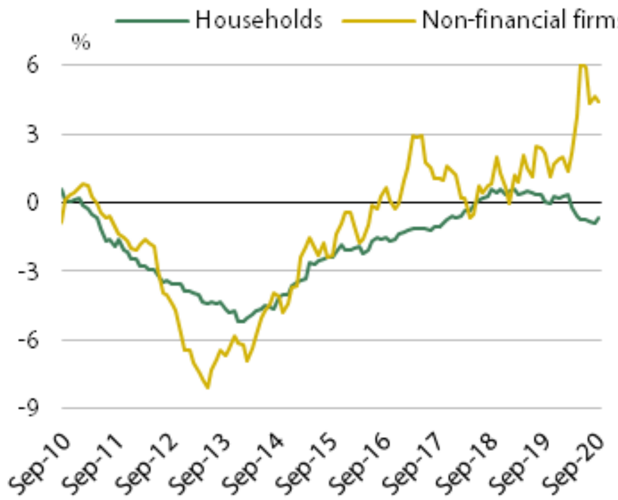


Figure 10. NPL (delinquency) ratio and unemployment rate

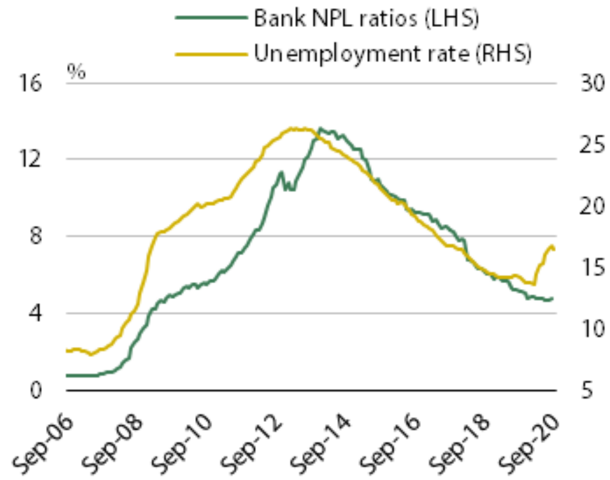


Figure 11. 10-year government debt risk premium (rate differential with Germany)

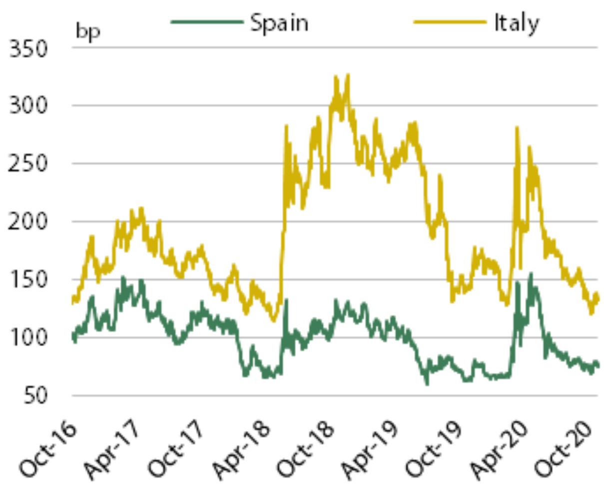


Figure 12. Private debt risk premium (5-year CDS)

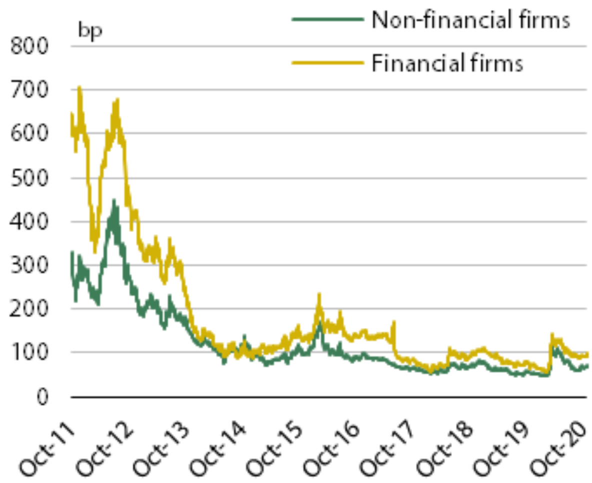


Figure 13. Housing prices (year-on-year change)

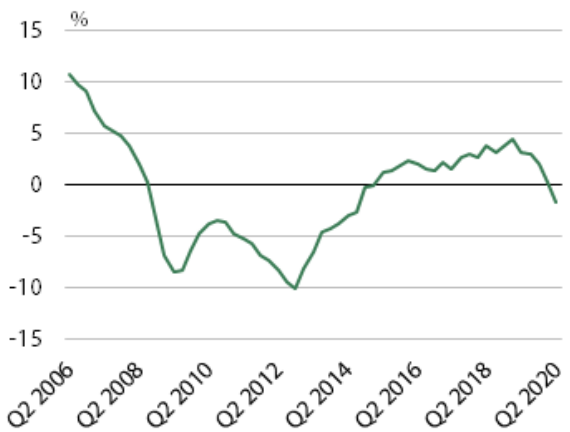
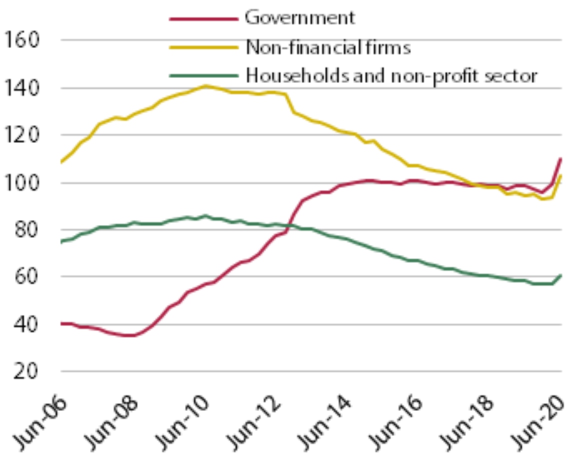
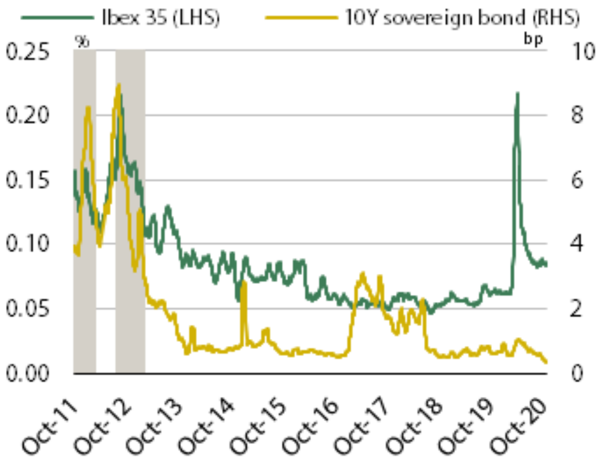


Figure 14. Indebtedness (% GDP)



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)

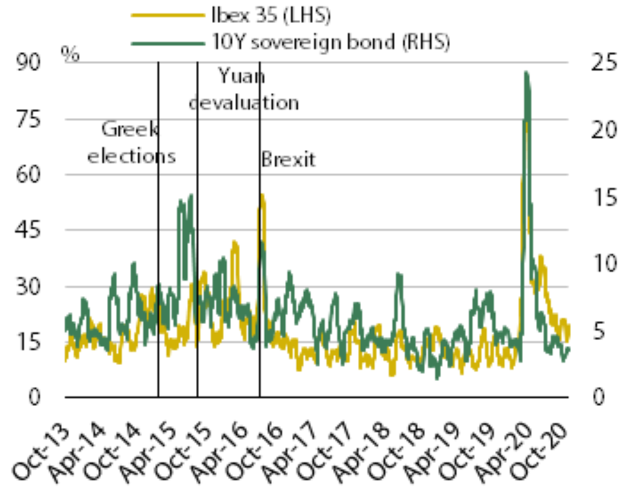


Figure 17. SIBE trading (1-month moving average)

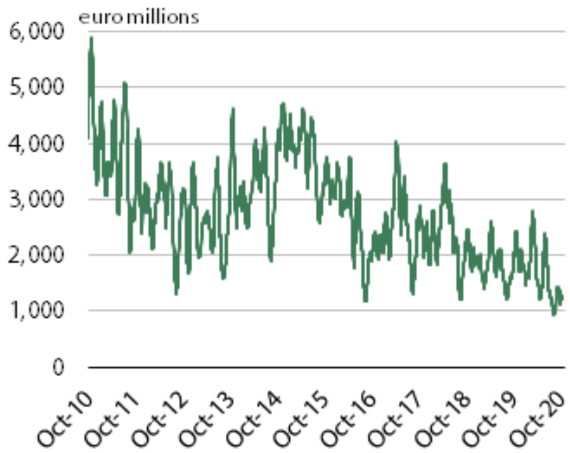


Figure 18. Interbank spread (LIBOR-OIS)

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

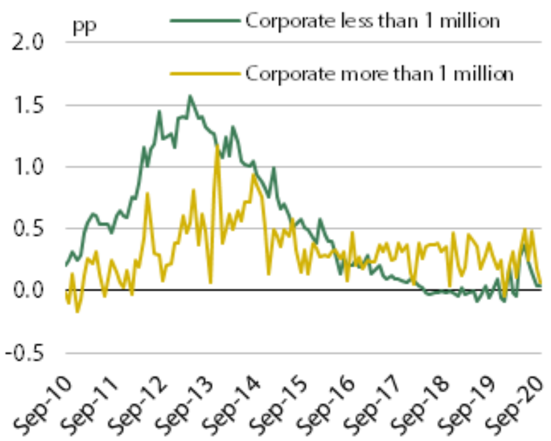
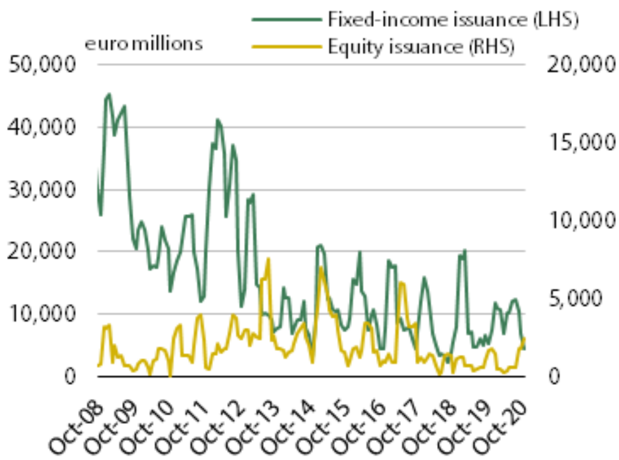


Figure 20. Issues (3-month moving average)



Macroeconomic risk: red

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

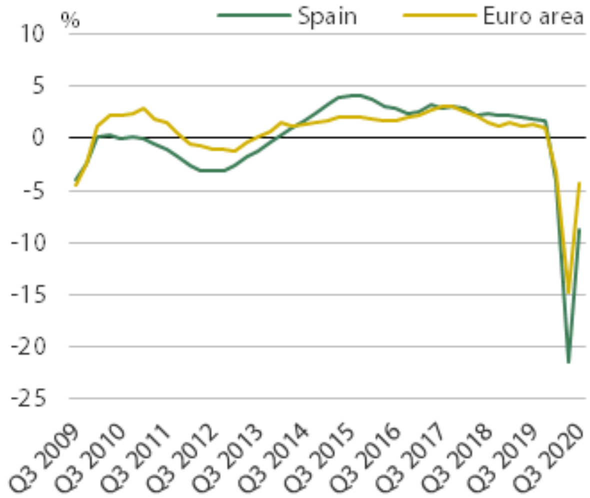


Figure 22. HCPI and core CPI (year-on-year change)

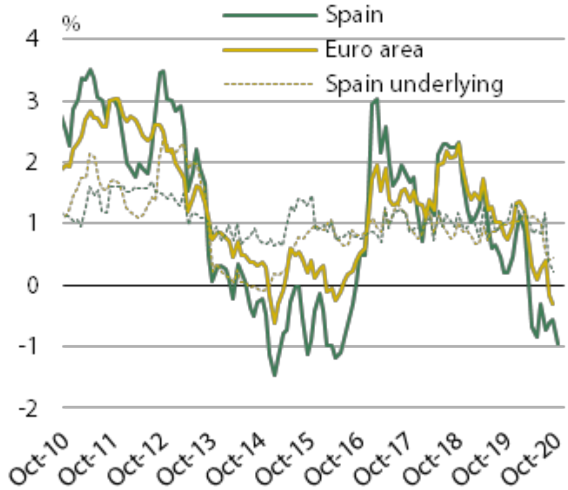


Figure 23. Employment (year-on-year change)

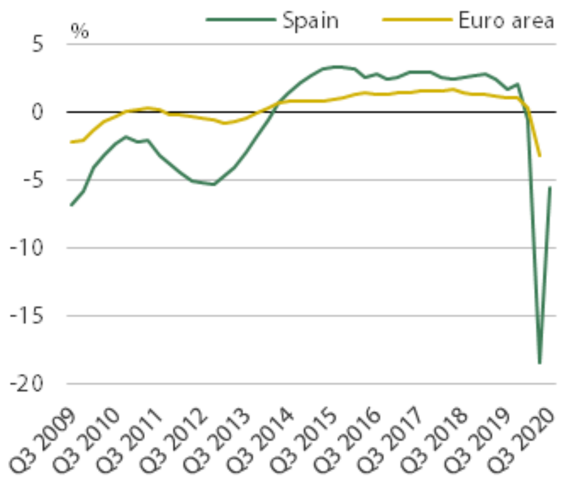
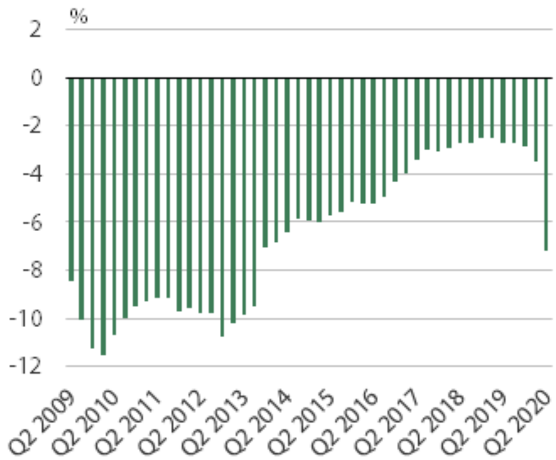


Figure 24. Government balance (% GDP)



Cumulative data for four quarters.

Figure 25. Exchange rates

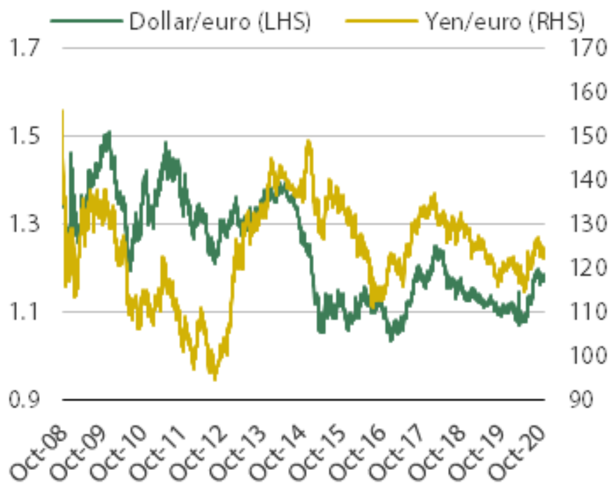
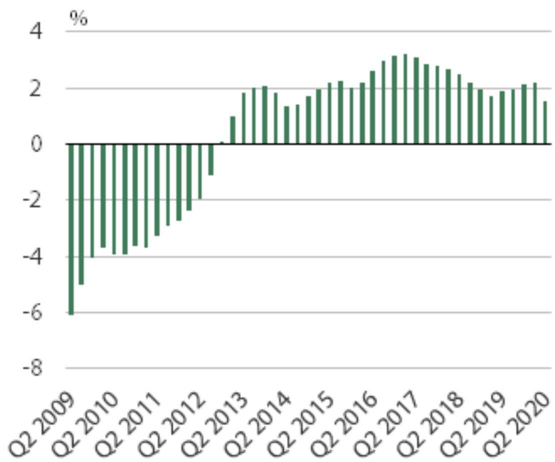
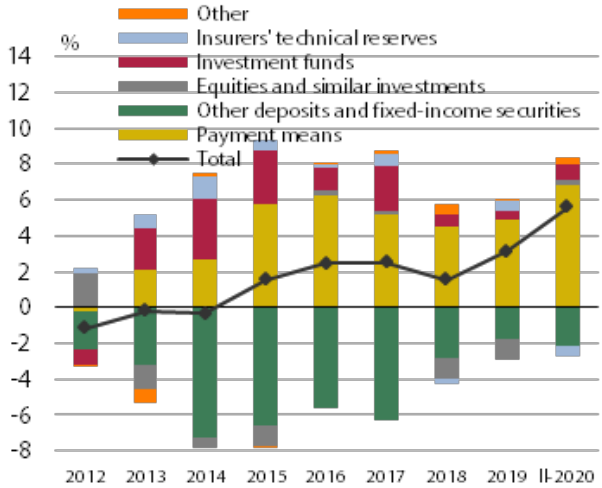


Figure 26. Current account balance (% GDP)



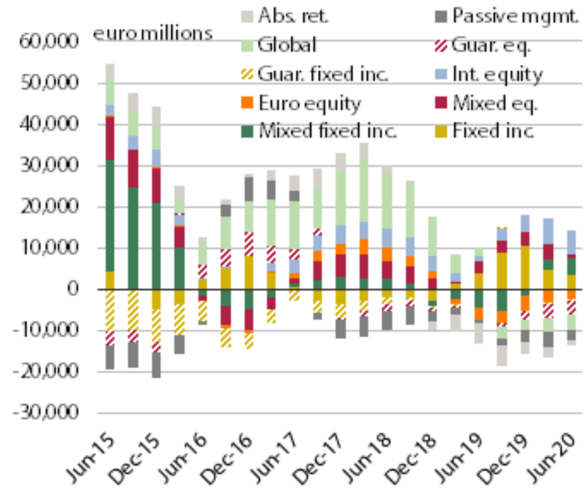
Investors

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)

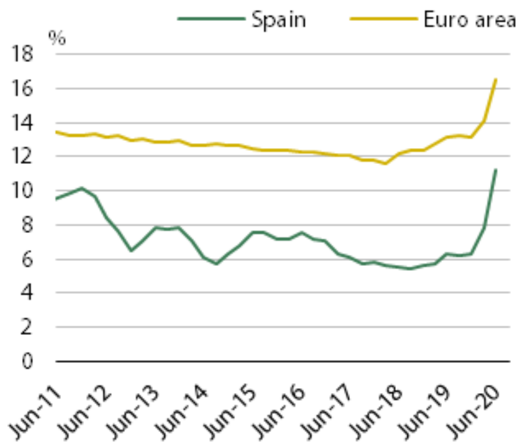
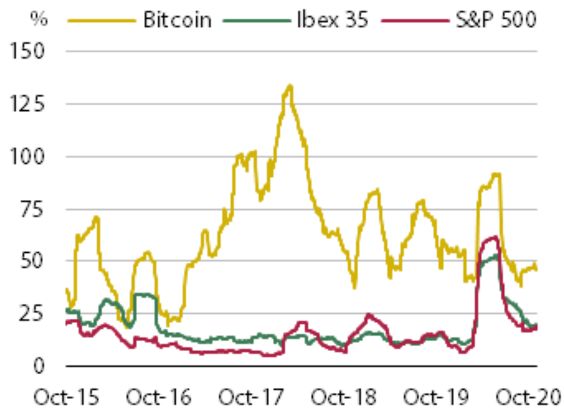


Figure 30. Bitcoin volatility



Risk of contagion: orange

Figure 31. Correlations among asset classes

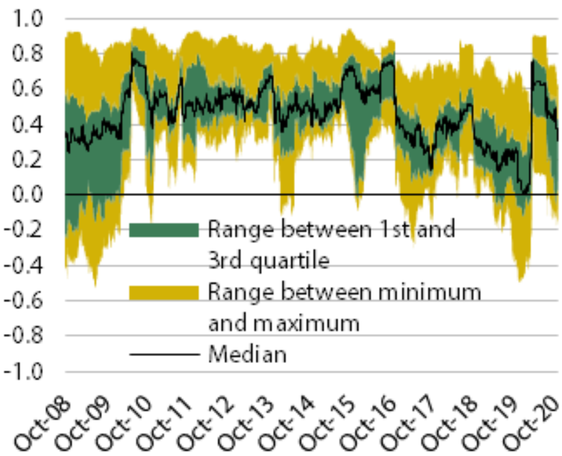
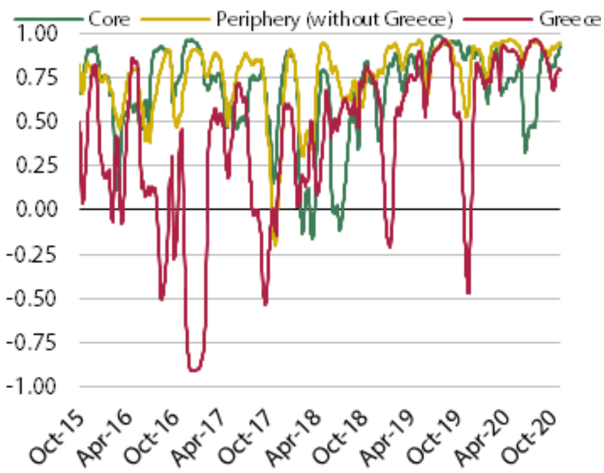
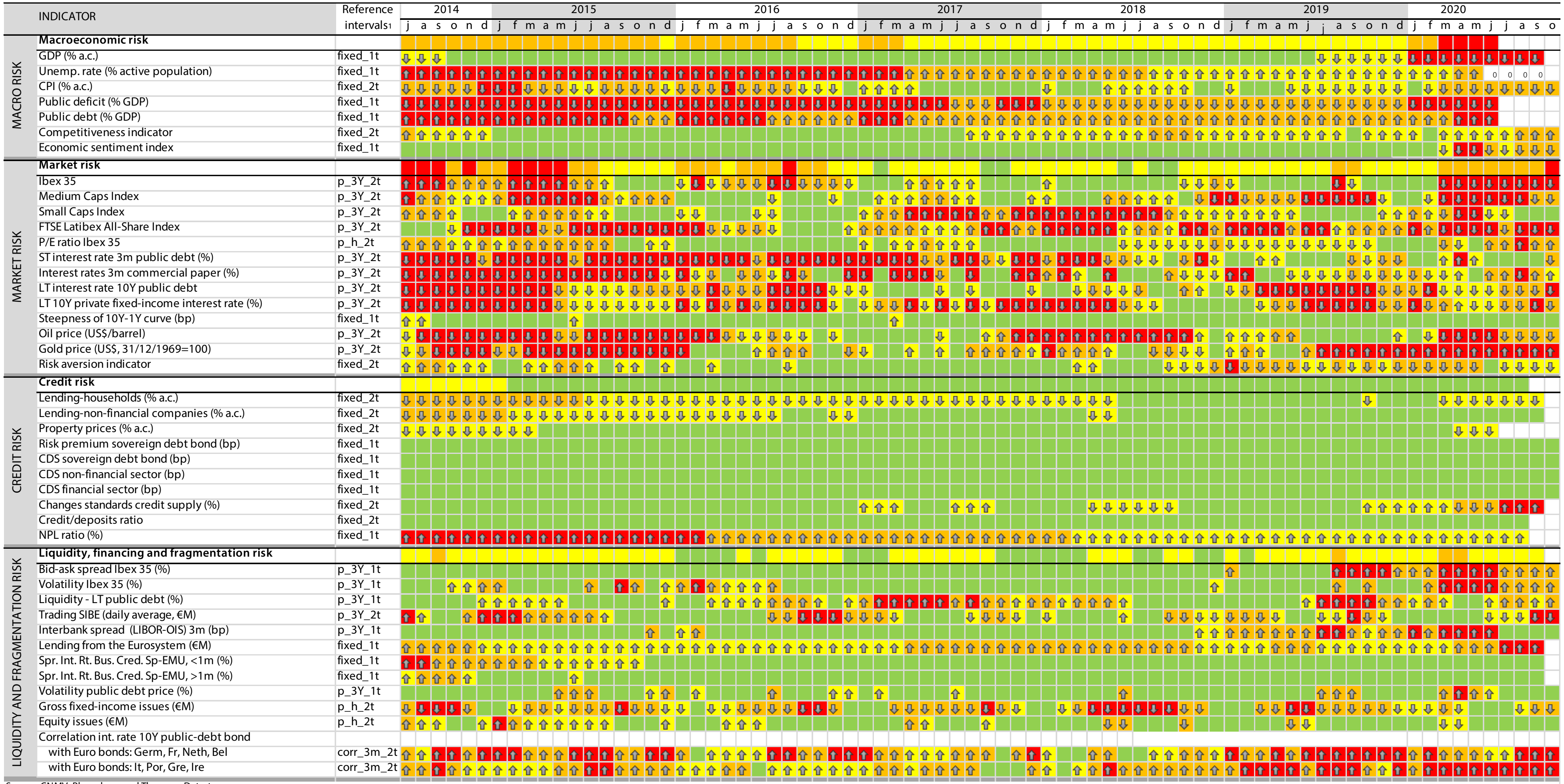


Figure 32. Correlation between the yield on Spanish and other European 10-year bonds



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.

2 Data until 15 July.

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,[64] 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 (equities, 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.

[64] 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 asset classes (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.