

MR06

MONTHLY REPORT • ECONOMIC AND FINANCIAL MARKET OUTLOOK

NUMBER 457 | JUNE 2021



ECONOMIC & FINANCIAL ENVIRONMENT

FINANCIAL MARKETS

The ECB's holistic approach

INTERNATIONAL ECONOMY

Risks of overheating in the US and consequences for the euro area

SPANISH ECONOMY

The substitution of cash by cards as a means of payment during the pandemic

DOSSIER: THE FINANCIAL IMPACT OF CLIMATE CHANGE

Understanding climate risks and their impact on the financial sector

Central banks and climate change: to act or not to act

Climate change and financial markets

MONTHLY REPORT - ECONOMIC AND FINANCIAL MARKET OUTLOOK

June 2021

The *Monthly Report* is a publication developed jointly by CaixaBank Research and BPI Research (UEEF)

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Date this issue was closed:
3 June 2021

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We need to talk about inflation

The last few months have seen an acceleration in the vaccination campaigns, an improvement in confidence and an increase in mobility. All of this is reflected in a widespread revival of global demand, taking advantage of both the highly favourable financial conditions and the support of the fiscal stimuli and the release of pent-up savings. Under normal conditions, the flexibility that value chains have provided to global supply should allow that rising demand to be met without too much difficulty. But after a year of closures and restrictions, with little visibility for businesses, it is concerning that neither stock levels nor logistics chains may be sufficiently ready to quickly respond to what is proving to be the biggest rebound in public and private spending in the past 15 years.

As a result, all the good news on the activity front is being accompanied by signs of upward pressure on inflation, the best thermometer for reflecting mismatches between supply and demand. For the time being, the tensions are highly localised in commodities, while broader price readings are far from at worrying levels, indicating that much of the increase is due to transitory factors that should dissipate during the second half of the year. Nevertheless, when inflation has already reached 4.2% in the US (with the risk of it hitting 5% this summer for the first time since 2008) and 2.4% in Germany, it is only normal that investors are beginning to get jittery.

Above all, production prices are already reflecting the price increases in the early sections of value chains, both in the US (6.1%) and in Europe (7.6%). This was to be expected given the shortage of products such as semiconductors, which serve as essential inputs in many sectors. Most concerning of all, however, are the bottlenecks appearing in the labour market. For instance, in the latest ISM manufacturing index in the US, employers have named the difficulties they are experiencing in hiring workers as one of the main sources of short-term concern (ahead of the pandemic), despite the fact that almost a third of the employment lost in the US is yet to be recovered (8 million jobs). While distortions in the labour supply caused by generous government aid or the closure of schools should be diluted over time, we cannot rule out the possibility that the pandemic could have lasting effects on the flexibility of the labour supply.

We wanted more inflation and now we have it, but as the old Chinese proverb reminds us, «Be careful what you wish for... you might just get it». For the time being, the good news is that, following the steepening of the yield curve at the beginning of the year in the US, the markets are reacting very calmly, with virtually no change in future interest rate expectations. In other words, while central banks have spent almost the last ten years fighting a very different enemy (deflation), the markets continue to trust in their ability to take preventative measures well in advance in the event of a rise in the risk of economic overheating. Such early measures would limit the impact that an unexpected rise in prices could have on interest rate expectations and long-term debt yields. For now, there is still some margin between the current yields on the US bond (1.6%) and the levels that could trigger turbulence.

Ultimately, while expected, the rise in inflation is causing discomfort due to the high levels that have been reached and the risk of it persisting at those levels for longer than desirable without investors being startled. In our case, we continue to expect a gradual decline beginning in the summer, although we see more risk in price developments in the US than in Europe. That said, there is no guarantee that the structural factors which have moderated inflation in recent decades (globalisation, population ageing, etc.) will automatically curb a potential surge in prices in circumstances as unusual as these. In terms of the economic outlook, economic policy had never been so expansive when the business cycle is already taking off and, moreover, changes are looming which could affect pricing processes (adjustments to value chains to reduce their fragility, corporate tax hikes, etc.). The key is whether, as many economists believe (including Paul Krugman), we are faced with an economy that is simply skidding around as it seeks to accelerate from 0 to 60 in a short time, in which case inertia will allow it to easily regain stability; or, on the contrary and as another camp of academia believes (Summers, etc.), overheating caused by an excessively expansive demand-focused policy could test the strength of the economic engine. In any case, what seems clear is that this is going to be the topic to watch over the next few months.

José Ramón Díez
June 2021

Chronology

MAY 2021

- 10** New crisis between Israel and Hamas with attacks in Israel and the Gaza Strip lasting two weeks. The ceasefire was established at the end of the month.
- 19** The EU opens its borders to fully-immunised tourists.
- 20** Global Health Summit organised by the G-20 and the EU in which support was pledged for greater production and distribution of vaccines to poor countries.

MARCH 2021

- 5** The EU and the US suspend tariffs which they had imposed on each other in retaliation for state aid to their respective aerospace industries.
- 11** The ECB indicates that it will increase the rate of weekly debt purchases under the pandemic emergency purchase programme (PEPP), although it did not alter the programme's design or total capacity (1.85 trillion euros).
- 19** Various EU countries resume use of the AstraZeneca COVID-19 vaccine (suspended mid-month) after the European Medicines Agency reiterated its safety and efficacy.

JANUARY 2021

- 15** The official global COVID-19 death toll surpasses 2 million people.
- 20** Joe Biden takes the oath of office to become the new US president. Earlier in the month, Donald Trump supporters had stormed Congress in protest at the election results.

APRIL 2021

- 1** OPEC and its partners approve a gradual increase in oil production for May, June and July 2021.
- 27** The European Parliament gives its final approval for the agreement governing the new relationship between the EU and the United Kingdom, already in force since January.
- 30** Spain submits its Recovery Plan to the European Commission to gain access to NGEU funds.

FEBRUARY 2021

- 13** The US Senate absolves Donald Trump from impeachment for the second time.
- 24** Ghana is the first country to receive a vaccine package as part of COVAX, the WHO-led programme aimed at ensuring equitable access to COVID-19 vaccines among developing countries.

DECEMBER 2020

- 2** The United Kingdom becomes the first Western country to approve the use of a vaccine against COVID-19.
- 10** The ECB increases the PEPP budget to 1.85 trillion, prolongs its net purchases until March 2022 and launches three new TLTRO-III operations.
- 24** The EU and the United Kingdom reach a trade agreement to regulate their economic relations from 1 January 2021, when the United Kingdom leaves the single market and customs union.

Agenda

JUNE 2021

- 2** Spain: registration with Social Security and registered unemployment (May).
- 10** Governing Council of the European Central Bank meeting.
- 11** Spain: Fitch rating.
Portugal: services activity indicator (April).
- 14** Portugal: tourism activity (April).
- 15-16** Federal Open Market Committee meeting.
- 17** Spain: quarterly labour cost survey (Q1).
- 22** Spain: loans, deposits and NPL ratio (Q1 and April).
- 23** Portugal: home prices (Q1).
- 24** Spain: quarterly national accounts (Q1).
Spain: balance of payments and NIIP (Q1).
Portugal: household savings rate (Q1).
- 24-25** European Council meeting.
- 29** Spain: CPI flash estimate (June).
Euro area: economic sentiment index (June).
- 30** Spain: household savings rate (Q1).
Spain: state budget execution (May).
Portugal: employment and unemployment (May).
Portugal: NPL ratio (Q1).

JULY 2021

- 2** Spain: registration with Social Security and registered unemployment (June).
- 8** Portugal: turnover in industry (May).
- 9** Portugal: international trade (May).
- 12** Spain: financial accounts (Q1).
- 15** Portugal: tourism activity (May).
- 22** Spain: loans, deposits and NPL ratio (May).
Governing Council of the European Central Bank meeting.
- 27** Portugal: loans to the non-financial private sector (June).
- 27-28** Federal Open Market Committee meeting.
- 29** Spain: labour force survey (Q2).
Spain: CPI flash estimate (July).
Euro area: economic sentiment index (July).
US: GDP (Q2).
- 30** Spain: GDP flash estimate (Q2).
Spain: state budget execution (June).
Portugal: GDP flash estimate (Q2).
Euro area: GDP (Q2).

Recovery or reconstruction?

«The end of the tunnel». With this title we opened the *Monthly Report* of November 2009. We praised the latest indicators with a sense of optimism: «After several long quarters of recession, the two key players in the world economy, the United States and the Euro Area, recorded growth in activity in the third quarter». We focused on describing the resilience of consumption, investment and the foreign sector, and we treated China separately, in the emerging economies section. This is a classical approach to analysing the economic outlook that is well-established in the profession, and one which we used begrudgingly as we felt that it was not entirely useful for capturing the underlying trends which ultimately condition the economic reality. Four years later, we would overhaul the structure of the *Monthly Report* to accommodate such considerations. Central banks had taken on a leading role during the crisis, but we expected them to quickly «focus all efforts on studying how to withdraw the extraordinary monetary injection in a orderly fashion». We stressed the need for structural reforms, but the economic bible had not yet incorporated into its pages the importance of taking into account political, social and institutional aspects in assessing the opportunity and capacity to implement them.

In October 2013 we once again felt like we were at the end of the tunnel. It had been longer and darker than it had appeared in 2009. The good performance of the economic activity indicators, which at the time gave us information on the economic situation with a two or three month time lag, led us to entitle this section with another relatively optimistic message: «Economic recovery and sources of political instability». After the experience of the previous few years, we were no longer making assertive statements. In fact, we would never do so again. We began to identify the counterpoint as lying within a sphere that would become key, politics. It had already gained prominence, but for the moment it was only perceived as a headache for the economic recovery. We did not yet understand the underlying factors that were blocking it, and which would continue to block it in virtually all countries. China was the exception. China was on its own path.

Monetary policy had taken on a central role and was acting as a sedative. Complete anaesthesia. The Fed decided to «delay the withdrawal of stimuli, preferring to wait for the economic recovery to firm up». The ECB was «ready to hold another long-term liquidity auction» if necessary. As the years went by, it would become clear that the support that central banks can offer, while substantial, also has its limits. We incorporated institutional aspects into the heart of the economic narrative in order to assess the economy's capacity to recover, although we incorrectly only focused on Europe, stating that «it is vital to strengthen the governance of European institutions». We continued to underscore, with even greater conviction and speed but with little success, the need for reforms to make the productive process more efficient. Social aspects were not yet receiving attention, but they would begin to do so over the next few years until they eventually became a central element of any economic analysis. As they should be.

June 2021: «Recovery or reconstruction?». We once again find ourselves at the end of the tunnel. Now we can say it with more conviction because we take the pulse of economic activity in real time. The two main protagonists of the world economy, the US and China, have been in full recovery mode for several quarters now. The recovery has finally also arrived in Europe and in Spain. CaixaBank Research's consumption indicator clearly reflects this: spending by Spaniards, which we approximate with the sum of cash withdrawals and card payments, exceeded in May the level observed before the pandemic, in May 2019. Quarter-on-quarter GDP growth could reach around 2% in Q2. The economic flank invites optimism. If COVID-19 does not mutate, and the vaccines remain as effective as they currently are and continue to be distributed at a good pace, then the rebound in economic activity over the coming quarters will be significant. GDP growth could reach 6% this year and around 5% in 2022, and the risks could lie predominantly on the upside. Consumption and investment could pick up by more than expected if pent-up demand is rapidly activated. The foreign sector will benefit from the recovery of tourism and global trade.

But now we also take the pulse of the social situation in real time and we know that the consequences of the pandemic would have been devastating if we had not had an advanced welfare state. Furthermore, we see that this welfare state needs to be further developed, as there are groups of the population to which it is not providing sufficient support. The experience of recent years has shown us that social cohesion is essential, both economically and politically.

At the political and institutional level, we are about to see a historic milestone: the Europe-wide implementation of the NGEU programme. The high volume of funds that will begin to be mobilised in the coming months should underpin the economic recovery. And the economic reforms that are being designed, if implemented, should serve to make the productive process more efficient and public policies more effective. This will help to strengthen social and territorial cohesion, to quickly move towards a more environmentally friendly economy and to strengthen the governance of European and Spanish institutions. However, the high political and social polarisation currently raging in Europe obliges us to be cautious. To what extent can the programmes that have been presented be effectively implemented? To what extent will the misgivings that exist between European countries remain subdued? The risks involved are by no means minor, given the heavy public debt burden that the COVID-19 crisis has left us with and the fragility of the social peace we still enjoy.

We are once again at the end of the tunnel, but this time we know that there is more than one way out. Inertia leads us towards recovery. Returning to the point we were at before the pandemic is tempting after so much suffering. But conviction must lead us towards reconstruction. We must set the course for a destination that is sustainable at the economic, social, environmental and territorial levels.

Oriol Aspachs

Average for the last month in the period, unless otherwise specified

Financial markets

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
INTEREST RATES							
Dollar							
Fed funds (upper limit)	3.43	0.55	2.50	1.75	0.25	0.25	0.25
3-month Libor	3.62	0.75	2.79	1.91	0.23	0.25	0.45
12-month Libor	3.86	1.26	3.08	1.97	0.34	0.50	0.80
2-year government bonds	3.70	0.80	2.68	1.63	0.13	0.25	0.50
10-year government bonds	4.70	2.58	2.83	1.86	0.93	2.00	2.10
Euro							
ECB depo	2.05	0.32	-0.40	-0.50	-0.50	-0.50	-0.50
ECB refi	3.05	0.90	0.00	0.00	0.00	0.00	0.00
Eonia	3.12	0.55	-0.36	-0.46	-0.47	-0.45	-0.45
1-month Euribor	3.18	0.67	-0.37	-0.45	-0.56	-0.48	-0.43
3-month Euribor	3.24	0.85	-0.31	-0.40	-0.54	-0.50	-0.40
6-month Euribor	3.29	1.00	-0.24	-0.34	-0.52	-0.48	-0.38
12-month Euribor	3.40	1.19	-0.13	-0.26	-0.50	-0.45	-0.35
Germany							
2-year government bonds	3.41	0.55	-0.60	-0.63	-0.73	-0.60	-0.45
10-year government bonds	4.30	1.82	0.25	-0.27	-0.57	-0.25	0.00
Spain							
3-year government bonds	3.62	2.06	-0.02	-0.36	-0.57	-0.26	-0.06
5-year government bonds	3.91	2.59	0.36	-0.09	-0.41	-0.10	0.12
10-year government bonds	4.42	3.60	1.42	0.44	0.05	0.35	0.50
Risk premium	11	178	117	71	62	60	50
Portugal							
3-year government bonds	3.68	4.02	-0.18	-0.34	-0.61	-0.16	0.05
5-year government bonds	3.96	4.67	0.47	-0.12	-0.45	-0.11	0.14
10-year government bonds	4.49	5.35	1.72	0.40	0.02	0.35	0.53
Risk premium	19	353	147	67	60	60	53
EXCHANGE RATES							
EUR/USD (dollars per euro)	1.13	1.29	1.14	1.11	1.22	1.17	1.17
EUR/GBP (pounds per euro)	0.66	0.83	0.90	0.85	0.90	0.88	0.85
USD/GBP (pounds per dollar)	0.59	0.64	0.79	0.76	0.74	0.75	0.73
OIL PRICE							
Brent (\$/barrel)	42.3	82.5	57.7	65.2	50.2	64.0	63.0
Brent (euros/barrel)	36.4	63.2	50.7	58.6	41.3	54.7	53.8

Forecasts

Percentage change versus the same period of the previous year, unless otherwise indicated

International economy

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
GDP GROWTH							
Global	4.5	3.4	3.6	2.8	-3.3	5.9	4.6
Developed countries	2.7	1.3	2.3	1.6	-4.7	5.3	4.0
United States	2.7	1.5	3.0	2.2	-3.5	6.5	4.3
Euro area	2.2	0.7	1.9	1.3	-6.7	4.2	4.1
Germany	1.6	1.3	1.3	0.6	-5.1	3.2	3.7
France	2.2	0.8	1.8	1.5	-8.2	5.7	3.8
Italy	1.5	-0.5	0.8	0.3	-8.9	4.3	3.9
Portugal	1.5	0.0	2.9	2.5	-7.6	3.7	4.7
Spain	3.7	0.3	2.4	2.0	-10.8	6.0	4.8
Japan	1.4	0.5	0.6	0.0	-4.7	2.3	2.2
United Kingdom	2.9	1.1	1.3	1.4	-9.8	7.0	5.7
Emerging and developing countries	6.5	5.1	4.5	3.6	-2.2	6.3	4.9
China	10.6	8.3	6.7	6.0	2.3	8.3	5.6
India	9.7	6.8	7.3	4.8	-7.0	9.2	7.3
Brazil	3.6	1.6	1.8	1.4	-4.1	3.5	2.5
Mexico	2.4	2.1	2.2	0.0	-8.2	4.8	2.7
Russia	7.2	0.9	2.5	1.3	-3.1	3.0	2.2
Turkey	5.4	5.1	2.8	0.9	1.6	4.3	3.4
Poland	4.2	3.4	5.4	4.8	-2.7	4.2	4.8
INFLATION							
Global	4.1	3.7	3.6	3.5	3.2	3.8	3.2
Developed countries	2.1	1.5	2.0	1.4	0.7	2.1	1.5
United States	2.8	1.7	2.4	1.8	1.2	3.2	2.0
Euro area	2.1	1.4	1.8	1.2	0.3	1.9	1.2
Germany	1.7	1.3	1.9	1.4	0.4	2.4	1.4
France	1.8	1.2	2.1	1.3	0.5	1.9	1.2
Italy	1.9	1.5	1.2	0.6	-0.1	1.7	1.1
Portugal	3.0	1.2	1.0	0.3	0.0	0.9	1.3
Spain	3.2	1.4	1.7	0.7	-0.3	1.7	1.3
Japan	-0.3	0.3	1.0	0.5	0.0	0.2	0.7
United Kingdom	1.9	2.4	2.5	1.8	0.9	1.7	1.4
Emerging countries	6.7	5.6	4.9	5.1	5.1	5.0	4.4
China	1.7	2.6	2.1	2.9	2.5	1.2	1.6
India	4.5	8.0	3.9	3.7	6.6	4.3	5.1
Brazil	7.3	6.1	3.7	3.7	3.2	5.2	3.8
Mexico	5.2	4.2	4.9	3.6	3.4	4.2	3.4
Russia	14.2	8.7	2.9	4.5	4.9	3.5	4.0
Turkey	27.2	8.4	16.2	15.5	14.6	14.2	8.0
Poland	3.5	2.0	1.2	2.1	3.7	4.1	2.9

Forecasts

Percentage change versus the same period of the previous year, unless otherwise indicated

Spanish economy

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
Macroeconomic aggregates							
Household consumption	3.6	-0.6	1.8	0.9	-12.4	6.6	5.0
Government consumption	5.0	0.9	2.6	2.3	3.8	3.0	0.6
Gross fixed capital formation	5.6	-2.8	6.1	2.7	-11.4	6.6	5.3
Capital goods	4.9	-0.5	5.4	4.4	-13.0	15.9	5.5
Construction	5.7	-5.2	9.3	1.6	-14.0	-0.1	5.1
Domestic demand (vs. GDP Δ)	4.5	-0.7	2.5	1.6	-8.3	5.8	4.1
Exports of goods and services	4.7	3.1	2.3	2.3	-20.2	11.4	7.7
Imports of goods and services	7.0	-0.3	4.2	0.7	-15.8	10.1	5.9
Gross domestic product	3.7	0.3	2.4	2.0	-10.8	6.0	4.8
Other variables							
Employment	3.2	-1.0	2.6	2.3	-7.5	5.5	3.0
Unemployment rate (% of labour force)	10.5	20.5	15.3	14.1	15.5	15.7	14.6
Consumer price index	3.2	1.4	1.7	0.7	-0.3	1.7	1.3
Unit labour costs	3.0	0.1	1.2	2.4	5.3	-1.3	0.3
Current account balance (% GDP)	-5.9	-0.8	1.9	2.1	0.7	1.5	1.6
External funding capacity/needs (% GDP)	-5.2	-0.3	2.4	2.6	2.6	1.7	1.8
Fiscal balance (% GDP) ¹	0.4	-6.7	-2.5	-2.9	-11.0	-8.6	-6.0

Note: 1. Excludes losses for assistance provided to financial institutions.

Forecasts

Portuguese economy

	Average 2000-2007	Average 2008-2017	2018	2019	2020	2021	2022
Macroeconomic aggregates							
Household consumption	1.7	0.1	2.6	2.6	-5.9	1.9	3.6
Government consumption	2.3	-0.6	0.6	0.7	0.4	3.5	0.5
Gross fixed capital formation	-0.3	-2.0	6.2	5.4	-2.0	3.9	7.9
Capital goods	6.2	2.0	9.2	4.3	-	-	-
Construction	-1.9	-4.4	4.7	7.2	-	-	-
Domestic demand (vs. GDP Δ)	1.3	-0.5	3.1	2.8	-4.6	2.5	3.9
Exports of goods and services	5.2	4.0	4.2	4.0	-18.7	12.2	8.4
Imports of goods and services	3.6	2.2	5.0	4.7	-12.1	8.8	6.2
Gross domestic product	1.5	0.0	2.9	2.5	-7.6	3.7	4.7
Other variables							
Employment	0.4	-0.6	2.8	1.2	-1.9	0.5	1.5
Unemployment rate (% of labour force)	6.1	11.8	7.2	6.6	7.0	7.8	7.5
Consumer price index	3.0	1.2	1.0	0.3	0.0	0.9	1.3
Current account balance (% GDP)	-9.2	-3.5	0.6	0.4	-1.2	-0.5	0.0
External funding capacity/needs (% GDP)	-7.7	-2.2	1.6	1.2	0.1	1.3	2.3
Fiscal balance (% GDP)	-4.6	-6.1	-0.3	0.1	-5.7	-4.9	-3.1

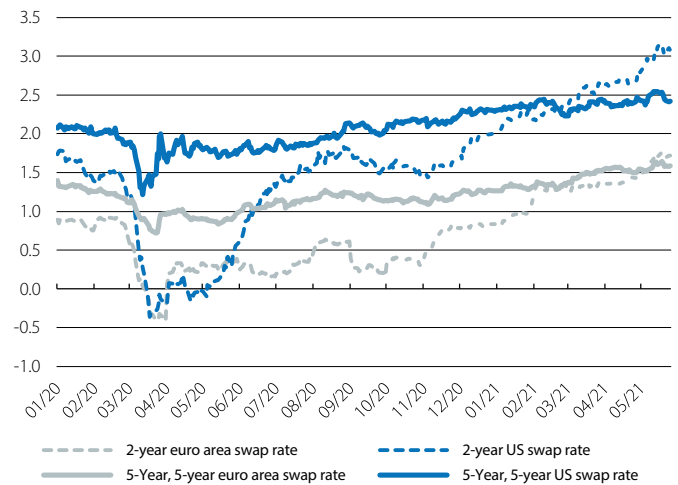
Forecasts

Cautious optimism returns to the financial markets

Investor mood: between economic recovery, COVID-19 and inflationary risks. In May, the progress of the economic recovery, especially in the euro area, favoured a greater appetite for risky assets. Economic activity indicators, such as the PMIs, stood well above the 50-point mark and hinted at what could be a significant rebound in GDP in Q2 (see the International Economy section for further details). Also, the corporate earnings campaign accompanied the improvement in investor sentiment, as 87% of the companies in the S&P 500 reported higher profits than consensus expectations (72% in the case of the Eurostoxx 600). However, some factors, such as the rise in the number of COVID-19 cases in Asia, or fears of a sustained rebound in inflation (mainly in the US) which could force an early withdrawal of the monetary stimuli, limited the gains in the equity market. In any case, the messages from the major central banks still point in the same direction: both the ECB and the Federal Reserve believe that the spike in inflation will be temporary, and for the euro area in particular the central bank believes that a dovish monetary policy will need to be maintained for some time to come in order to bring medium-term inflation closer to its target. That said, some voices within the FOMC and even the ECB's Governing Council are suggesting that some of these stimuli should begin to be reduced.

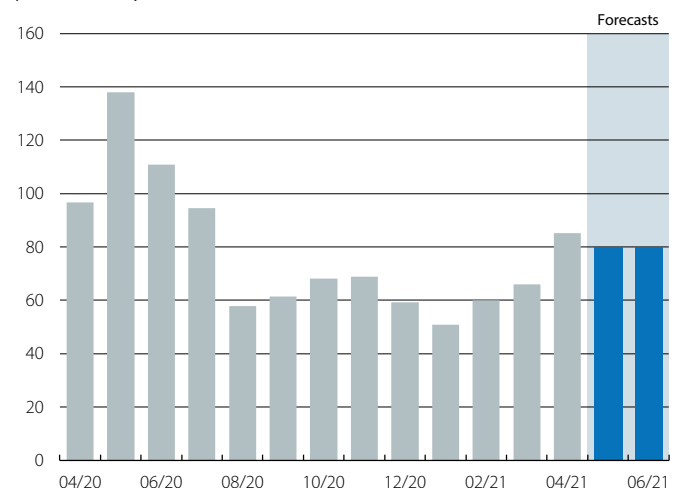
The central banks will reveal more clues in June about their asset purchases. Despite both the Fed and the ECB maintaining that the rebound in inflation is transitory and should not change the direction of monetary policy, the progress of the economic recovery is encouraging the most hawkish members to talk about reducing the pace of net asset purchases. In the case of the Fed, the minutes of the April meeting offered a surprise by revealing that some members proposed discussing at upcoming meetings the idea of adjusting the asset-purchase programme should the economy continue to register «rapid progress» with regard to the targets. However, since April's meeting the rapid improvements in the employment data have moderated, which could lead to these plans being put on hold. In the euro area, meanwhile, discussion of the rate of purchases under the PEPP, which currently stand at around 80 billion euros per month, was postponed until June. Members of the Governing Council will have to weigh up two opposing factors at the meeting: on the one hand, what is expected to be a solid rebound in economic activity in the second half of 2021 and, on the other, the rebound in interest rates on sovereign debt. In any case, some members' messages suggest that, after the PEPP comes to an end, ECB support will continue to be needed to bring inflation in line with the target of below, but close to, 2%.

Euro area and the US: inflation swaps (%)



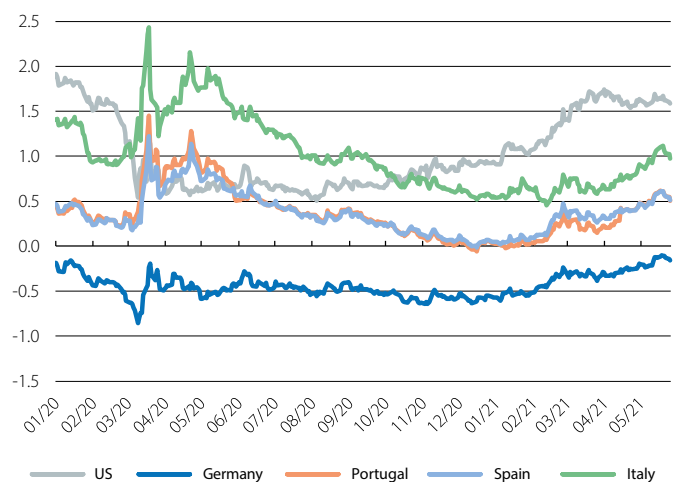
Source: CaixaBank Research, based on data from Bloomberg.

ECB: monthly net purchases under the PEPP (EUR billions)



Source: CaixaBank Research, based on data from Bloomberg.

Yields on 10-year sovereign debt (%)



Source: CaixaBank Research, based on data from Bloomberg.

Swings in the fixed-income market. Interest rates on sovereign debt in Germany and the US surged during the first half of the month, hoisted up by the surprise of April inflation data in the US and economic indicators that suggest bottlenecks are being generated in some sectors of industry and transportation. The *bund* rallied 13 bps and reached -0.10%, a level not seen since May 2019. However, as the month progressed and messages from members of the Fed and the ECB indicated the continuation of the dovish monetary policy, interest rates on these assets returned to levels similar to those seen at the beginning of the month. Risk premiums for the European periphery, meanwhile, followed a very similar pattern, registering an increase in the first few weeks before ending the month almost flat (both the Spanish and the Portuguese spread fluctuated in the range between 65 and 75 bps).

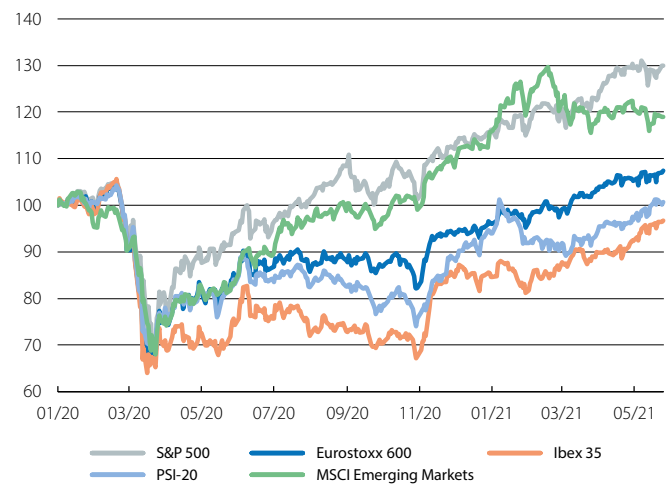
The stock markets continue to rally, especially in Europe.

In May, the main stock market indices maintained the good performance of the previous month and once again registered gains. These were higher in Europe (Eurostoxx 600 +2.1%, Ibex 35 +3.8% and PSI-20 +2.6%) than in the US (S&P 500 +0.5% and Nasdaq -1.5%), despite there being more positive surprises in the corporate earnings campaign on the other side of the Atlantic. The greater relative weight of companies in the discretionary consumption and technology sectors in the US could partly explain the worse performance of the US indices, as these sectors were particularly sensitive to the rises in inflation expectations and official interest rates.

Oil returns to around 70 dollars per barrel. The improved outlook for economic growth in the second half of 2021 reinforced the expectation of higher demand for crude oil, and the price of a barrel of Brent reached levels not seen since 2019. This factor overpowered others which momentarily pushed the oil price down, such as the rise in COVID-19 cases in Asia, especially India, and the thawing of relations between the US and Iran, which could culminate in the lifting of the export sanctions currently imposed on Tehran. Some estimates suggest that Iran could add 1.5 million barrels a day to the oil market, around 1.5% of global output. In FX markets, meanwhile, the US dollar weakened against most advanced-economy currencies, allowing the euro to fluctuate at around 1.22 dollars. Emerging currencies registered widespread appreciation, with the exception of the Turkish lira, which continued to show weakness in the face of investors' lack of confidence following the changes made by Turkish President Recep Tayyip Erdoğan at the head of the country's central bank.

Major international stock markets

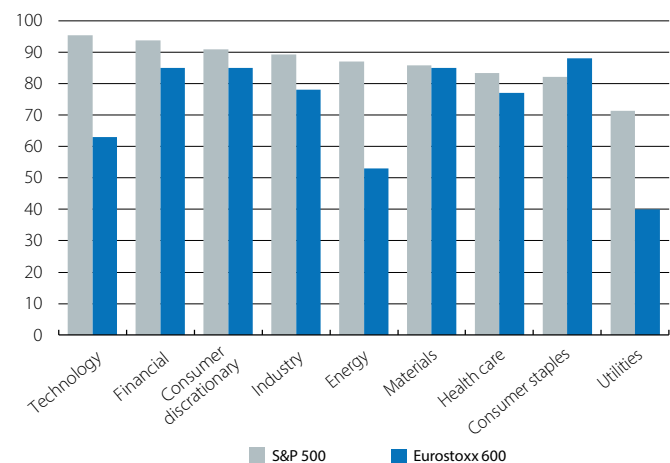
Index (100 = January 2020)



Source: CaixaBank Research, based on data from Bloomberg.

S&P 500 and Eurostoxx 600: companies with better-than-expected earnings in Q1

(% of companies)



Source: CaixaBank Research, based on data from Refinitiv.

Oil price

(Dollars per barrel of Brent)



Source: CaixaBank Research, based on data from Bloomberg.

The ECB's holistic approach

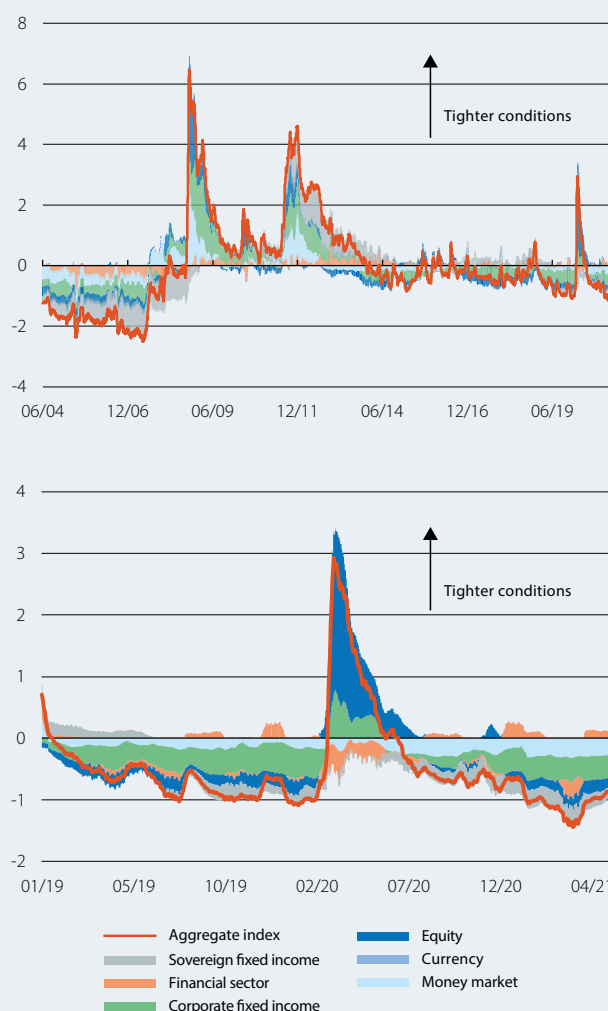
One of the lessons of the 2008 global financial crisis was that financial conditions can have a significant impact on the economy. We also learnt that changes in central banks' official interest rates are not always sufficient to capture all the interactions between the financial system and the real economy. Variables such as credit growth, financial market volatility and spreads between various assets in different risk classes are also components of the prevailing financial conditions and affect the behaviour of consumption, savings and investment. It is this world of financial conditions as a whole that ultimately influences the performance of the real economy. Indeed, the ECB itself acknowledges this in describing financial conditions as the «compass that guides monetary policy».¹ Therefore, if we want to get a better understanding of monetary policy decision-making, we must pay close attention to changes in financial conditions. To do this, there is an important initial step: knowing how to measure them.

The CaixaBank Research financial conditions index for the euro area in times of pandemic

With the aim of «taking the temperature» of the financial environment which determines macroeconomic performance and thus the ECB's decisions, we have created an index that measures a wide range of financial conditions (see table).² In the first chart we can see the evolution of this index by component since 2004. An important first message emerges from the chart: the tightening of financial conditions at the height of the COVID-19 pandemic was significant, but less than that observed during the 2008 financial crisis or the euro area sovereign debt crisis of 2012. Despite the intensity of the COVID-19 crisis, it is very different in nature to those that preceded it: the source of the crisis is not financial, the economy was in

Financial conditions in the euro area: the CaixaBank Research index and its components

Index (0 = historical average)



Source: CaixaBank Research.

Segments and variables that make up the CaixaBank Research financial conditions index

Sovereign fixed income	<ul style="list-style-type: none"> • Yields on the one-year German bond. • Spread between yields on the 10-year and the 3-month German bond. • Spread between a weighted average of the yields on 10-year bonds in Spain, Italy and Portugal and the German 10-year bond.
Money market	<ul style="list-style-type: none"> • Spread between the three-month EURIBOR interest rate and that of the three-month German bond.
Corporate fixed income	<ul style="list-style-type: none"> • Markit iTRAXX Index: CDS of high-yield European corporations.
Equity	<ul style="list-style-type: none"> • Daily change in the level of the Eurostoxx 600. • Volatility of the Eurostoxx 600.
Currency	<ul style="list-style-type: none"> • Daily change in the effective euro exchange rate (set of 19 currencies).
Financial sector	<ul style="list-style-type: none"> • Daily change in the stock market capitalisation of the financial sector as a proportion of the total market capitalisation. • Change in loans to households and non-financial corporations.

Note: See the technical appendix for details on the methodology used (in the online version of the article, available at www.caixabankresearch.com).

1. See P. Lane *The compass of monetary policy: favourable financing conditions*. Speech of 25 February 2021.

2. The index is generated based on the variance matrix for the variables listed in the table using principal component analysis methodology. The index is normalised and values higher (lower) than 0 indicate tighter (looser) financial conditions than the historical average. For further details, see the extended version with the appendix at www.caixabankresearch.com.

a reasonably good state to begin with and the drop in economic activity is temporary. Moreover, all spheres of economic policy have acted quickly and decisively to protect the productive fabric of the economy.

If we focus on the evolution of the index since early 2020, we see that most of the financial stress in the spring of 2020 comes from the equity market, with a surge in volatility and stock prices in free fall. Remember that European stock markets fell by as much as 14% in a single day, while the Eurostoxx 600 plummeted by 44% between the peak of Q1 2020 and its lowest point. Other markets were stressed to a lesser extent, perhaps because many of them (the money market and the sovereign fixed-income market) were already relatively anchored by the accommodative measures that the ECB had been implementing for years. Nevertheless, they were still stressed to some degree, with a tightening in almost all segments of the index, and the situation did not begin to improve until the ECB took exceptional measures³ and fiscal policy announced the launch of a strong safety net.⁴

Preserving favourable financial conditions for the recovery

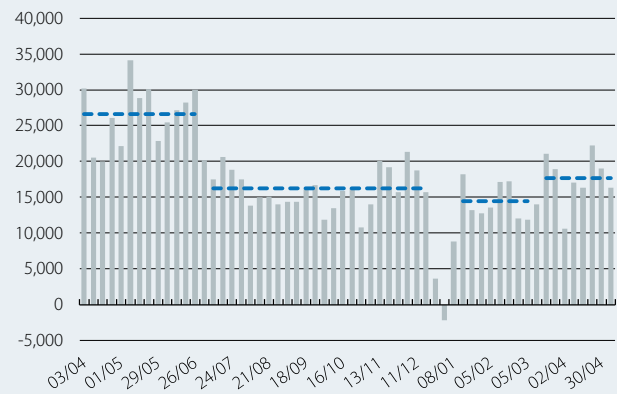
Fast forward to 2021, with the pandemic somewhat more under control and the vaccination roll-out well under way, global economic activity is expected to pick up, albeit unevenly. Whilst the US will reach its pre-pandemic levels of economic activity in the coming months, Europe is expected to experience a more gradual recovery. This buoyancy in the US economy has translated into an elevation of the long section of the sovereign yield curve,⁵ which the Fed has tolerated since it is in response to an improvement in the economic outlook. However, given the global nature of the financial markets, this rally could drag the euro area's financial conditions into territory that would be unfavourable for the economic recovery. For this reason, at its latest meetings the ECB decided to «significantly» accelerate the rate of purchases under the PEPP, at least during Q2 2021, in order to «prevent a tightening of financial conditions».

However, our index does not reflect a tightening of the euro area's financial conditions. In the last chart we can see that both the index and the fixed-income sub-component were relatively impervious to the rally

3. Boosting asset purchases under the APP, the creation of the PEPP to acquire assets of up to 1,850 million euros, and increased liquidity through TLTROs, among others. For more details, see the Central Bank Observatory.

4. Tax deferrals, guarantees for businesses, and temporary workforce reduction schemes. Also, at the EU level, the Next Generation EU programme was approved with some 750 billion euros in aid and loans. 5. For more details, see the Focus «New fiscal package in the US: overheating in sight?» in the MR04/2021.

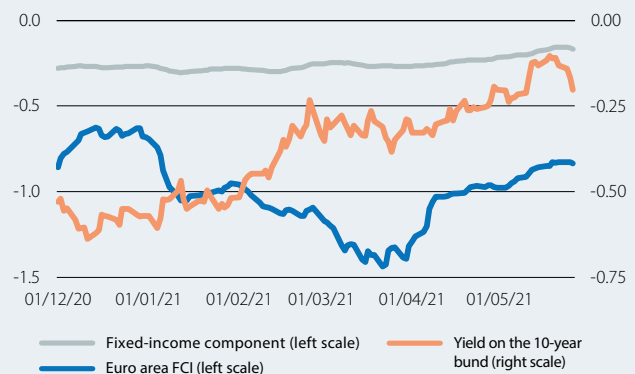
ECB: weekly purchases under the PEPP (EUR millions)



Note: The dotted lines show, from left to right, the weekly average during Q2 2020, the second half of 2020, Q1 2021 (up until the ECB's March meeting) and after the «significant» increase in purchases up until the date of the latest available data.

Source: CaixaBank Research, based on data from Bloomberg.

Financial conditions and yield on the 10-year bund Index (0 = historical average) (%)



Source: CaixaBank Research, based on data from Bloomberg.

in euro area sovereign yields. On the one hand, short-term interest rates and sovereign risk premiums have remained stable since the beginning of the year, so they have not contributed to a tightening of financial conditions. In addition, the CaixaBank Research Financial Conditions Index suggests that these are particularly sensitive to corporate fixed-income markets, interbank rates and stock market volatility, while fluctuations in the *bund* have less of an impact (see the annex in the long version of the web). These segments, unlike Germany's sovereign rates, have not accompanied the tightening of US interest rates. For this reason, perhaps it should come as no surprise that the increase in the pace of purchases under the PEPP in Q2 has been smaller than some analysts expected.

Laura Becerra

(See an extended version of this article at [caixabankresearch.com](https://www.caixabankresearch.com))

Interest rates (%)

	31-May	30-Apr.	Monthly change (bp)	Year-to-date (bp)	Year-on-year change (bp)
Euro area					
ECB Refi	0.00	0.00	0	0.0	0.0
3-month Euribor	-0.54	-0.54	-1	0.1	-21.9
1-year Euribor	-0.48	-0.48	0	1.6	-38.0
1-year government bonds (Germany)	-0.63	-0.64	2	8.6	-5.9
2-year government bonds (Germany)	-0.66	-0.68	2	3.8	-0.9
10-year government bonds (Germany)	-0.19	-0.20	2	38.2	21.5
10-year government bonds (Spain)	0.46	0.48	-1	41.6	-11.4
10-year government bonds (Portugal)	0.46	0.48	-2	43.0	-5.4
US					
Fed funds (upper limit)	0.25	0.25	0	0.0	0.0
3-month Libor	0.13	0.18	-5	-10.7	-20.6
12-month Libor	0.25	0.28	-3	-9.4	-38.9
1-year government bonds	0.03	0.05	-2	-7.1	-12.7
2-year government bonds	0.14	0.16	-2	2.0	-1.6
10-year government bonds	1.59	1.63	-3	68.1	93.5

Spreads corporate bonds (bps)

	31-May	30-Apr.	Monthly change (bp)	Year-to-date (bp)	Year-on-year change (bp)
Itraxx Corporate	50	50	0	2.5	-20.5
Itraxx Financials Senior	59	58	0	-0.4	-23.0
Itraxx Subordinated Financials	108	108	1	-2.6	-65.9

Exchange rates

	31-May	30-Apr.	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
EUR/USD (dollars per euro)	1.223	1.202	1.7	0.1	9.8
EUR/JPY (yen per euro)	133.970	131.400	2.0	6.2	11.8
EUR/GBP (pounds per euro)	0.860	0.870	-1.1	-3.7	-3.5
USD/JPY (yen per dollar)	109.580	109.310	0.2	6.1	1.8

Commodities

	31-May	30-Apr.	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
CRB Commodity Index	548.5	532.1	3.1	23.6	49.2
Brent (\$/barrel)	69.3	67.3	3.1	33.8	80.9
Gold (\$/ounce)	1,906.9	1,769.1	7.8	0.4	9.6

Equity

	31-May	30-Apr.	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
S&P 500 (USA)	4,204.1	4,181.2	0.5	11.9	37.6
Eurostoxx 50 (euro area)	4,039.5	3,974.7	1.6	13.7	31.2
Ibex 35 (Spain)	9,148.9	8,815.0	3.8	13.3	26.7
PSI 20 (Portugal)	5,180.2	5,050.7	2.6	5.8	17.0
Nikkei 225 (Japan)	28,860.1	28,812.6	0.2	5.2	30.8
MSCI Emerging	1,376.2	1,347.6	2.1	6.6	44.6

After the deluge, the skies begin to clear

There are good reasons to be optimistic. In recent weeks, the health data and economic activity indicators have led to a shower of optimism in the major advanced economies, resulting in an upward revision of the growth forecasts for 2021 and 2022. The reopening of domestic mobility and the easing of restrictions between countries (which is fundamental for Europe), as well as the lifting of closures and longer opening hours among catering establishments and a gradual increase in hotel occupation rates, reinforce expectations for a brighter middle of the year in advanced economies.

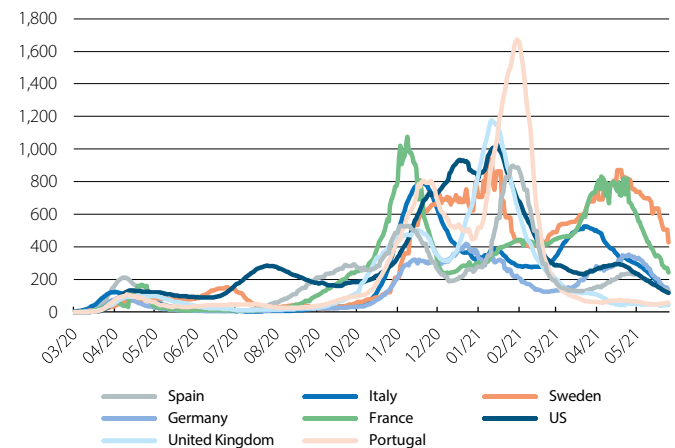
The vaccine is reinforced as the decisive weapon in the fight against COVID-19. The key behind this improvement is the sprint in the vaccination campaigns in the developed world. At the current rate, herd immunity could be achieved this summer. In June, it is expected that over 50% of the population in Europe will have received at least one dose, and over 60% in the US. The main risk now is that the vaccines could lose their effectiveness with the new variants of the virus, which are still very present in many countries. The mutation spreading across India is the most worrying at present, as it is more contagious and also has a higher mortality rate. The war against the pandemic is global and, for the moment, battles are only being won in rich countries with access to the vaccines.

ADVANCED ECONOMIES

The gaps between both sectors and countries are narrowing. The brighter outlook is very visible in surveys and high-frequency indicators published since April, in terms of both mobility and economic activity. The sings of revival are widespread, especially in the services sector (i.e. they are no longer limited to industry), but they are also noticeable in countries lagging further behind. In the US, GDP is expected to exceed pre-pandemic levels in this second quarter. However, even in the US, which is ahead of the curve, some sectors continue to suffer and the labour market still has a long way to go. For instance, there are still some 8 million fewer people working than there were at the start of the crisis. Although some of them have left the labour market permanently (some baby boomers have decided to retire early), it is estimated that there are around 3 million people who have left the market for reasons such as caring for people. The labour market will remain the weak point of the global recovery for some time to come: including furlough schemes, in developed economies alone some 30 million jobs have been lost, according to estimates by *The Economist*.

Cumulative COVID-19 cases

(14-day cumulative number of cases per 100,000 inhabitants)



Note: Data available up until 27 May 2021.

Source: CaixaBank Research, based on data from the Spanish Ministry of Health, Johns Hopkins CSSE and UN World Population Prospects.

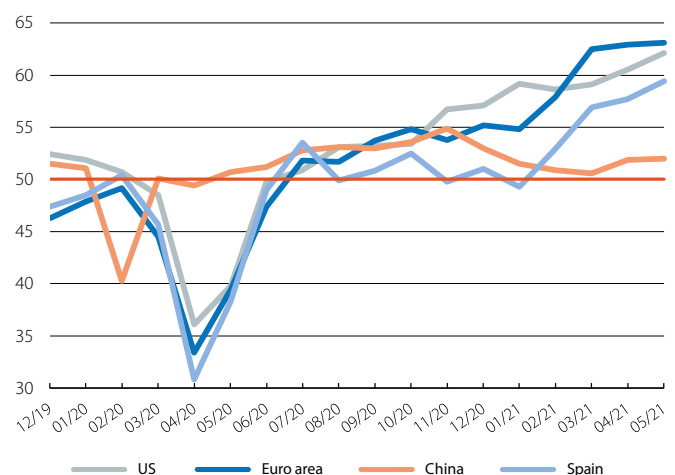
Vaccination around the world

	Date of latest data	Doses delivered	% of population vaccinated	Doses in last week per 100,000 inhabitants
Israel	26 May	10,571,337	62.9	304
United Kingdom	25 May	61,995,062	56.5	6,097
Canada	26 May	21,939,046	53.5	6,609
Chile	25 May	17,794,484	52.2	4,526
US	26 May	289,212,304	49.4	3,565
Germany	26 May	47,358,842	41.5	5,515
Spain	25 May	25,592,991	36.8	4,701
Italy	26 May	32,368,381	36.3	5,645
Portugal	26 May	5,317,986	36.0	4,985
France	25 May	33,681,416	35.2	4,956
Poland	26 May	18,785,240	34.7	5,209
Denmark	26 May	3,202,613	34.3	5,599

Source: CaixaBank Research, based on data from the Spanish Ministry of Health and Our World in Data - Oxford University.

Manufacturing PMI by country

Level



Source: CaixaBank Research, based on data from Markit.

Spring also arrives in Europe's economies. The data give a clear signal that the euro area has overcome the latest turbulence and that the downside risks in the growth outlook have cleared. Indeed, the balance of risks is now broadly positive, especially for 2022, as reflected in our new forecasts. What is perhaps harder to believe is that the improvement in the euro area is here to stay, given how accustomed we have become to disappointment. But the truth is that the revival looks strong (for instance, in May the expectations component of Germany's Ifo index reached its highest level since 2011) and this will allow the gap between the two major Atlantic economies to narrow. Growth in the US in 2021 will be much higher than in the euro area (6.5% compared to 4.2%, according to our estimates, both revised upwards this month). However, that is more a reflection of past events (GDP declines in the euro area in Q4 2020 and Q1 2021) than of the present and what is to come: providing there are no negative surprises, euro area growth in the mid-year quarters of 2021 could even outperform that of the US.

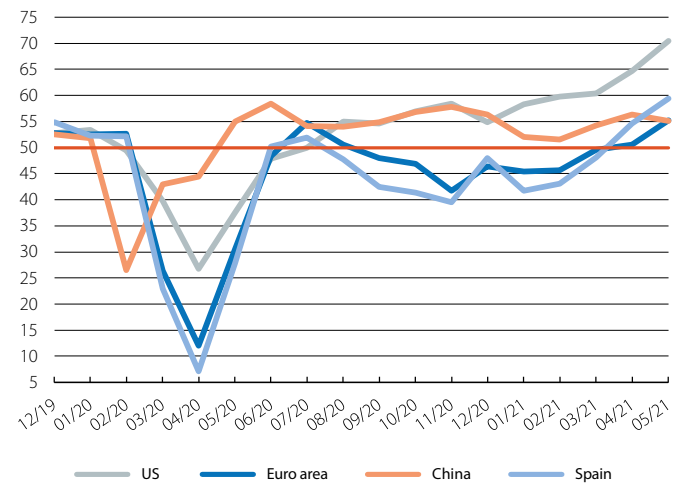
New fiscal stimuli are expected on both sides of the Atlantic. The Biden administration remains highly active and has proposed two new long-term (10-year) fiscal packages amounting to a total of 4 trillion dollars (approximately 20% of GDP), one related to infrastructure and the other in the social sphere. Europe is also starting to make moves: countries have already presented their programmes in order to receive funds from the Recovery Plan, which could begin to be disbursed as early as July, providing an important stimulus for Southern and Eastern Europe. In this context, the European Commission raised its growth forecasts for the EU in 2021 and 2022 and confirmed that the stability and growth pact will remain on hold until 2023, reducing the risk of a premature withdrawal of the support for weaker economies. In any case, there is little doubt that the fiscal rules will need to be rethought, as the vast majority of countries have exceeded their target debt levels and some have more than doubled them.

Are major political changes looming in Germany? Germany's upcoming legislative elections in September are also in the spotlight, as the latest polls suggest a technical tie between the CDU and the Green Party. Right now, a coalition government between the two forces appears to be the most likely outcome. *A priori*, this would be a balanced government, with more sensitivity towards Europe and favourable to handing over more powers to Brussels (the ability to collect revenues and issue bonds) and greater investment in infrastructure and new technologies. It could therefore strengthen the Franco-German axis and have a greater chance of implementing major EU reforms.

Upside inflation risks also materialise, especially in the US. As we have been warning about, inflation rising above the US and euro area central banks' target rates was almost

Services PMI by country

Level



Source: CaixaBank Research, based on data from Markit.

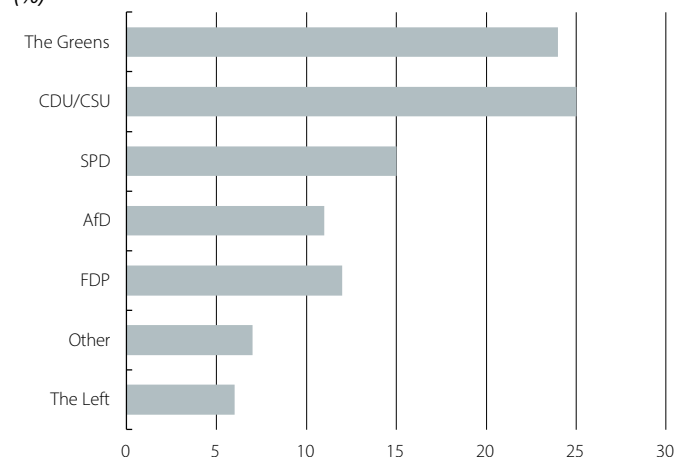
European Commission forecasts

	GDP		Inflation		Public debt		Fiscal balance	
	Annual Δ (%)		Annual Δ (%)		(% of GDP)		(% of GDP)	
	2021	2022	2021	2022	2021	2022	2021	2022
Euro area	4.3	4.4	1.7	1.3	102.4	100.8	-8.0	-3.8
Germany	3.4	4.1	2.4	1.4	73.1	72.2	-7.5	-2.5
France	5.7	4.2	1.4	1.1	117.4	116.4	-8.5	-4.7
Italy	4.2	4.4	1.3	1.1	159.8	156.6	-11.7	-5.8
Spain	5.9	6.8	1.4	1.1	119.6	116.9	-7.6	-5.2
Portugal	3.9	5.1	0.9	1.1	127.2	122.3	-4.7	-3.4

Source: CaixaBank Research, based on data from the European Commission (European Economic Forecast, Spring 2021).

Germany: if the parliamentary elections were this Sunday, I would vote for...

(%)



Source: CaixaBank Research, based on data from POLITICO Research (28 May 2021).

a certainty, given the base effects at play. Nevertheless, in the US the debate has heated up after headline inflation rose above 4% in April (much higher than expected), while core inflation stood at a high 3.0%, driven up by the rise in demand and the bottlenecks that are beginning to be felt in some sectors. In this context, the impact on bond yields is nevertheless contained, most likely due to moderation in the pace of job creation (+266,000 in April compared to 770,000 in March). In our case, the much higher than expected April figure has led us to substantially revise our US inflation forecasts (3.2% on average for the year, compared to the previous 2.7%). However, we still believe that the rebound in inflation will be temporary (with the peak in May). In particular, we expect to see a gradual decline beginning in the summer, with inflation reaching close to 2% in the second half of 2022.

In the euro area, the stress on inflationary is more contained.

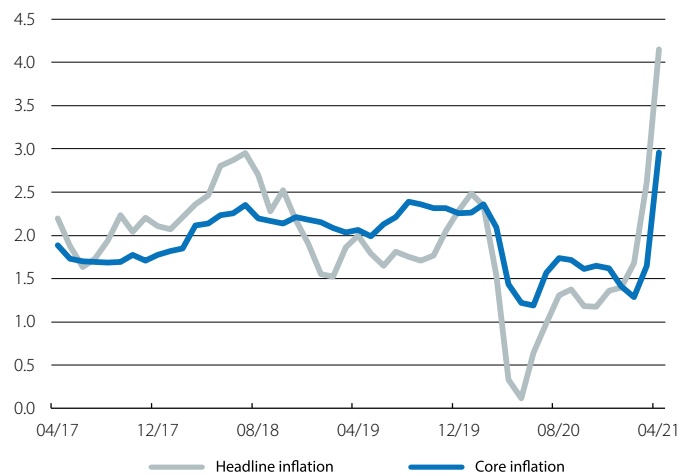
Inflation rose in April to 1.6% from 1.3% (in line with our forecasts). In the short term it will continue to rise (we expect it to reach a high of slightly more than 2.5% at the end of the summer), before falling back down and reaching around 1.5% by Q2 2022. However, risks of higher inflation continue to dominate the outlook, especially in the US. Significant and unique factors support the hypothesis of persistently high rates: i) a historic acceleration in economic activity, following a similarly historic collapse (global growth will approach 6.0% in 2021, compared to -3.3% in 2020); ii) large quantities of household savings; iii) evidence of supply-side restrictions in some sectors, and iv) unprecedented fiscal and monetary stimuli. Increasing speculation can therefore be expected about the timing of the reduction in the monetary stimuli, which will certainly be earlier in the US than in the euro area and will trigger nerves in the financial markets (see the Financial Markets section for details about the Fed and the ECB).

EMERGING ECONOMIES

More erratic signs in emerging economies. Unlike developed countries, emerging countries have shown mixed and somewhat erratic signs in recent weeks. However, China remains the centre of attention, where policymakers are prioritising elements such as financial stability in a context of strong anticipated growth in 2021 (8.3%). In this regard, the latest movements suggest a relative improvement in the quality of debt among corporate bonds, as well as strong demand for private credit. On the other hand, the foreign sector remains a strength for the Asian economy and is favoured by the global recovery. In the medium term, the 19th National Congress of the Chinese Communist Party in October showed that the authorities are aware of the imbalances in China's growth, with an excessive role of state investment in heavy industry and excessive carbon emissions, but the country's economy has significant inertia.

US: CPI

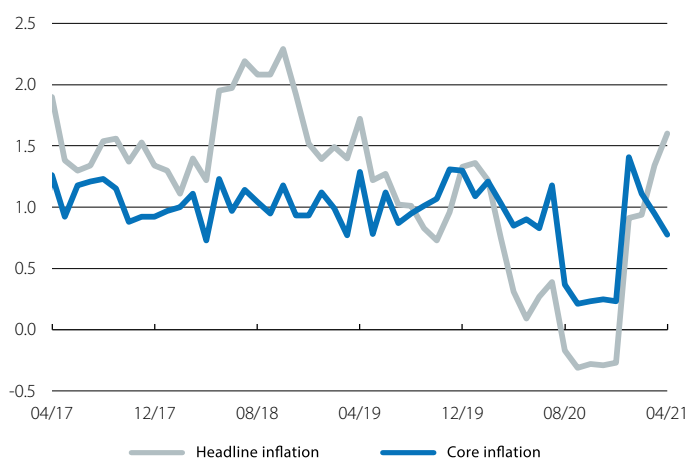
Year-on-year change (%)



Source: CaixaBank Research, based on data from the Bureau of Labor Statistics.

Euro area: CPI *

Year-on-year change (%)

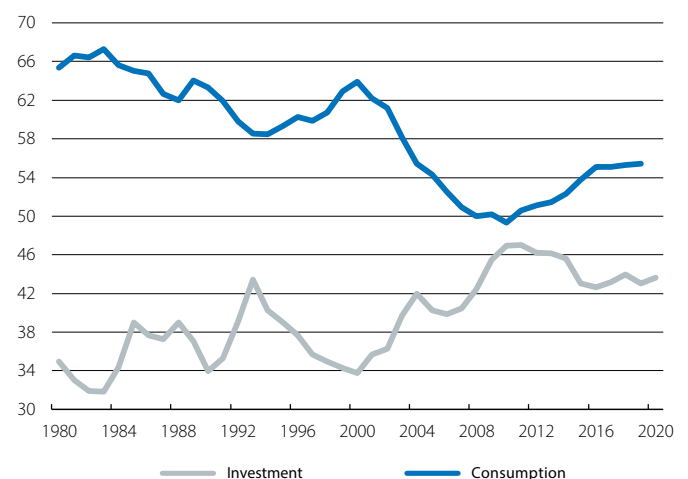


Note: * Data corresponding to the HICP.

Source: CaixaBank Research, based on data from Eurostat.

China: investment and consumption

(% of GDP)



Source: CaixaBank Research, based on data from the IMF.

Risks of overheating in the US and consequences for the euro area

Following a contraction in GDP of 3.5% in 2020, the strong vital signs of US economic activity and the high vaccination rate suggest that the economy could grow by more than 6.0% in 2021. Inflation has also surged in recent months (4.2% in April, with a 3.0% rise in the core index). Much of this increase reflects the impact of base effects (see first chart), so the rebound is expected to dissipate in the closing stages of 2021. However, the risk of overheating in the US economy has increased due to the latest and significant fiscal spending measures and the bottlenecks that are beginning to emerge in many sectors, in a context of strong recovery in economic activity.

Monetary policy and overheating in the US

The risk of overheating has led to an adjustment of market expectations regarding the future path of monetary policy (see second chart). For now, the Fed has not shown any concern and maintains its guidance that interest rates will not rise before 2024.¹ This strategy is supported by the fact that a full recovery of the labour market is still distant (the unemployment rate was 6.1% in April, well above the 3.5% pre-COVID),² as well as by the greater tolerance of inflation over 2% that the Fed included in its last strategic review (following a long period of inflation below the target rate in recent years).³ In this context, we expect to see a very gradual withdrawal of the monetary stimuli,⁴ with a gradual rise of the yield on the 10-year Treasury from the current 1.6% to around 2% by the end of the year, driven by the process of economic reopening, inflation and higher issuance volumes by the Treasury.

However, if the labour market recovers quicker than expected and the bottlenecks do not ease, we estimate that core inflation could stand at around 3% on a sustained basis in 2021 and 2022 (see third chart). If these risks of overheating intensify, the Fed could respond in two ways: by showing tolerance and standing by its current guidance, or by changing its forecasts and

1. The market, however, anticipates that rates will begin to rise in early 2023.

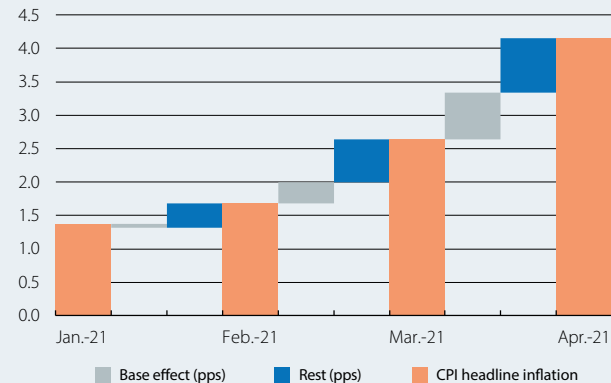
2. Moreover, the unemployment rate hides the fact that 2.5-3 million people have stopped looking for work because of the pandemic (in many cases because they are caring for relatives). This would amount to an additional 1.6-2 percentage points on top of the official unemployment rate.

3. See the Focus «The Fed's new strategy» in the MR10/2020.

4. We foresee the Fed maintaining the current rate of asset purchases (approximately 120 billion dollars per month in treasuries and MBSs) until Q1 2022, when it would begin to reduce the rate of purchases. Once the tapering process is complete, we expect the Fed to remain active in the market through reinvestments. As for official rates, we do not expect to see the first increase (+25 bps) until 2023.

US: breakdown of the change in headline inflation

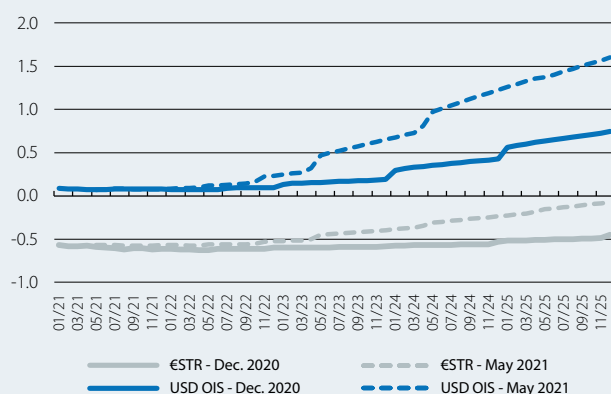
Year-on-year change (%)



Source: CaixaBank Research, based on data from the Bureau of Labor Statistics.

Interest rates: market-based expectations

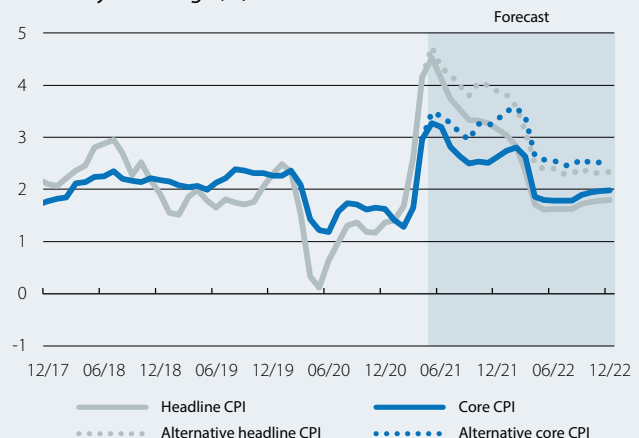
(%)



Source: CaixaBank Research, based on data from Bloomberg.

US: CPI

Year-on-year change (%)



Source: CaixaBank Research, based on data from the BLS and internal analysis.

announcing that it plans to bring forward the tapering process and the first rate hike. The first option – showing tolerance – could lead to a sharp rise in long-term interest rates, a situation that the Fed will be keen to avoid.

We therefore believe that, in the face of clear inflationary pressures, the Fed would opt for the second option: it could bring the rate hike forward to September 2022 and continue this trend with more sustained rises in 2023 and 2024. In this scenario, in the short term we would see a significant increase in the slope of the yield curve due to the increase in real rates resulting from both the confirmation of a better growth outlook and the lower future purchases of public debt by the central bank. In 2022, the yield on the 10-year Treasury could reach almost 3%, before moderating slightly (to around 2.5%). As for the exchange rate, while the dollar would tend to depreciate if the Fed is perceived as being excessively dovish, greater confidence that it will update its guidance will help to bolster the currency.

Consequences for Europe

Unlike the US, in Europe the risk of inflation being persistently higher than expected is lower. Furthermore, we believe the ECB would take the necessary steps to moderate the effect that a potential rate hike in the US would have on the European yield curve (the increase in the slope of the European yield curve would not be as marked as in the US). For now, euro area inflation is likely to be above 2% in 2021, but this rebound reflects technical and temporary factors. When these fade, we expect that inflation will return to moderate levels and that an accommodative monetary policy will continue to be needed. We therefore expect that the ECB will not cease its net purchases under the PEPP until Q1 2022 and that it will continue them under the APP through to 2024. The sequential nature of the ECB's withdrawal strategy implies that official interest rate hikes are unlikely to come any earlier.

That said, bottlenecks and the momentum of global demand could also affect the euro area economy and its inflation. Nevertheless, they would most likely do so to a lesser extent than in the case of the US, given that the European recovery is clearly more gradual and the fiscal stimuli are less far-reaching than in the US. In this scenario, inflation could approach the 2% mark earlier than the ECB anticipates, but after years of undershooting the target, such a situation should not concern the monetary institution. We therefore believe that the ECB would focus on avoiding a significant tightening of financial conditions. On the other hand, the potential depreciation of the euro in the event of a change of tone by the Fed

would not determine the decisions taken by the ECB's Governing Council.⁵

Thus, while the ECB could withdraw the stimuli earlier than anticipated, it would do so in a moderate and orderly manner. For instance, this adjustment could materialise by still ending net purchases under the PPEP in Q1 2022, but bringing forward the end of the APP by around six months (to the second half of 2023), as well as by increasing the depo rate, with a first 25-bp rise at the end of that year. In other words, in the event of overheating in the US economy, the euro area can be expected to continue to operate in an environment of accommodative financial conditions.

5. A 10% depreciation of the euro increases the euro area inflation rate by a few decimal points, mainly because of the rise in energy prices, and the effect tends to be diluted over time. See the Focus «[The sensitivity of inflation to the euro's appreciation](#)» in the MR11/2017.

Year-on-year (%) change, unless otherwise specified

UNITED STATES

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	02/21	03/21	04/21
Activity									
Real GDP	2.2	-3.5	-9.0	-2.8	-2.4	0.4	-	-	-
Retail sales (excluding cars and petrol)	4.0	2.2	-4.8	5.4	4.7	11.6	6.2	19.1	37.6
Consumer confidence (value)	128.3	101.0	90.0	93.1	93.8	99.1	95.2	114.9	117.5
Industrial production	0.9	-6.7	-14.2	-6.3	-4.3	-2.3	-5.7	1.0	16.5
Manufacturing activity index (ISM) (value)	51.2	52.5	45.7	55.0	59.0	61.4	60.8	64.7	60.7
Housing starts (thousands)	1,295	1,395	1,079	1,432	1,575	1,602	1,447	1,733	1,569
Case-Shiller home price index (value)	217	228	224	229	239	248	248	252	...
Unemployment rate (% lab. force)	3.7	8.1	13.1	8.8	6.8	6.2	6.2	6.0	6.1
Employment-population ratio (% pop. > 16 years)	60.8	56.8	52.9	56.1	57.4	57.6	57.6	57.8	57.9
Trade balance ¹ (% GDP)	-2.7	-3.3	-2.7	-2.9	-3.3	-3.6	-3.5	-3.6	...
Prices									
Headline inflation	1.8	1.2	0.4	1.2	1.2	1.9	1.7	2.6	4.2
Core inflation	2.2	1.7	1.3	1.7	1.6	1.4	1.3	1.6	3.0

JAPAN

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	02/21	03/21	04/21
Activity									
Real GDP	0.0	-4.7	-10.2	-5.5	-1.0	-1.8	-	-	-
Consumer confidence (value)	38.9	31.1	24.6	30.5	33.0	33.3	33.9	36.1	34.7
Industrial production	-2.7	-10.6	-20.7	-12.7	-4.2	-1.5	-3.1	1.0	...
Business activity index (Tankan) (value)	6.0	-19.8	-34.0	-27.0	-10.0	5.0	5.0	-	-
Unemployment rate (% lab. force)	2.4	2.8	2.7	3.0	3.0	2.8	2.9	2.6	2.8
Trade balance ¹ (% GDP)	-0.3	0.1	-0.5	-0.3	0.1	0.7	0.1	0.2	0.6
Prices									
Headline inflation	0.5	0.0	0.1	0.2	-0.8	-0.4	-0.4	-0.1	-0.5
Core inflation	0.6	0.2	0.3	0.1	-0.3	0.2	0.2	0.3	-0.1

CHINA

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	02/21	03/21	04/21
Activity									
Real GDP	6.0	2.3	3.2	4.9	6.5	18.3	-	-	-
Retail sales	8.1	-2.9	-4.0	0.9	4.6	34.0	33.8	34.2	17.7
Industrial production	5.8	3.4	4.4	5.8	7.1	24.6	35.1	14.1	9.8
PMI manufacturing (value)	49.7	49.9	50.8	51.2	51.8	51.3	50.6	51.9	51.1
Foreign sector									
Trade balance ^{1,2}	421	527	409	444	527	629	37	14	43
Exports	0.5	3.6	-0.2	8.4	16.6	48.9	-29.9	30.6	32.3
Imports	-2.7	-0.7	-9.5	3.6	5.4	28.2	-44.0	38.2	43.1
Prices									
Headline inflation	2.9	2.5	2.7	2.3	0.1	0.0	-0.2	0.4	0.9
Official interest rate ³	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4	4.4
Renminbi per dollar	6.9	6.9	7.1	6.9	6.6	6.5	6.5	6.5	6.5

Notes: 1. Cumulative figure over last 12 months. 2. Billion dollars. 3. End of period.

Source: CaixaBank Research, based on data from the Department of Economic Analysis, Bureau of Labor Statistics, Federal Reserve, Standard & Poor's, ISM, National Bureau of Statistics of Japan, Bank of Japan, National Bureau of Statistics of China and Refinitiv.

EURO AREA

Activity and employment indicators

Values, unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	02/21	03/21	04/21
Retail sales (year-on-year change)	2.4	-1.0	-6.6	2.4	1.5	1.9	-1.5	12.0	...
Industrial production (year-on-year change)	-1.3	-8.6	-20.2	-6.8	-1.5	3.1	-1.8	10.9	...
Consumer confidence	-7.0	-14.3	-18.5	-14.4	-15.6	-13.7	-14.8	-10.8	-8.1
Economic sentiment	103.7	88.2	72.0	88.5	91.4	95.3	93.4	100.9	110.5
Manufacturing PMI	47.4	48.6	40.1	52.4	54.6	58.4	57.9	62.5	62.9
Services PMI	52.7	42.5	30.3	51.1	45.0	46.9	45.7	49.6	50.5
Labour market									
Employment (people) (year-on-year change)	1.2	-1.6	-2.9	-2.1	-1.9	...	...	-	-
Unemployment rate (% labour force)	7.6	8.0	7.6	8.6	8.3	8.2	8.2	8.1	...
Germany (% labour force)	3.1	4.2	4.2	4.5	4.6	4.5	4.5	4.5	...
France (% labour force)	8.5	8.1	7.2	9.1	8.1	7.9	8.0	7.9	...
Italy (% labour force)	10.0	9.3	8.5	9.9	9.8	10.2	10.2	10.1	...
Real GDP (year-on-year change)	1.3	-6.7	-14.6	-4.1	-4.9	-1.8	-1.8	-	-
Germany (year-on-year change)	0.6	-5.1	-11.2	-3.8	-3.3	-3.1	-3.1	-	-
France (year-on-year change)	1.8	-8.0	-18.4	-3.5	-4.6	1.2	1.2	-	-
Italy (year-on-year change)	0.3	-8.9	-18.1	-5.2	-6.6	-1.4	-1.4	-	-

Prices

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	02/21	03/21	04/21
General	1.2	0.3	0.2	0.0	-0.3	1.1	0.9	1.3	1.6
Core	1.0	0.7	0.9	0.6	0.2	1.2	1.1	0.9	0.7

Foreign sector

Cumulative balance over the last 12 months as % of GDP of the last 4 quarters, unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	02/21	03/21	04/21
Current balance	2.5	2.4	2.3	2.2	2.4	...	2.5	...	...
Germany	7.5	7.0	6.8	6.8	7.0	...	6.9	...	...
France	-0.7	-1.9	-1.4	-1.7	-1.9	...	-1.8	...	...
Italy	3.2	3.5	3.0	3.4	3.5	...	4.8	...	...
Nominal effective exchange rate¹ (value)	92.4	93.9	93.3	95.6	95.7	...	95.3	94.9	95.4

Credit and deposits of non-financial sectors

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	02/21	03/21	04/21
Private sector financing									
Credit to non-financial firms ²	3.8	6.3	7.1	7.1	7.0	6.4	7.0	5.3	3.2
Credit to households ^{2,3}	3.4	3.2	3.0	3.1	3.2	3.1	3.0	3.3	3.8
Interest rate on loans to non-financial firms ⁴ (%)	1.2	1.2	1.2	1.3	1.3	1.1	1.2	1.1	...
Interest rate on loans to households for house purchases ⁵ (%)	1.5	1.4	1.4	1.4	1.4	1.3	1.3	1.3	...
Deposits									
On demand deposits	8.0	12.9	12.9	14.1	15.2	16.1	17.1	14.2	12.7
Other short-term deposits	0.3	0.6	0.3	1.0	1.4	1.0	1.0	0.9	0.3
Marketable instruments	-1.9	10.0	7.1	10.9	18.3	13.1	14.0	7.0	10.6
Interest rate on deposits up to 1 year from households (%)	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	...

Notes: 1. Weighted by flow of foreign trade. Higher figures indicate the currency has appreciated. 2. Data adjusted for sales and securitization. 3. Including NPISH. 4. Loans of more than one million euros with a floating rate and an initial rate fixation period of up to one year. 5. Loans with a floating rate and an initial rate fixation period of up to one year.

Source: CaixaBank Research, based on data from the Eurostat, European Central Bank, European Commission, national statistics institutes and Markit.

The recovery of the Spanish economy gets under way

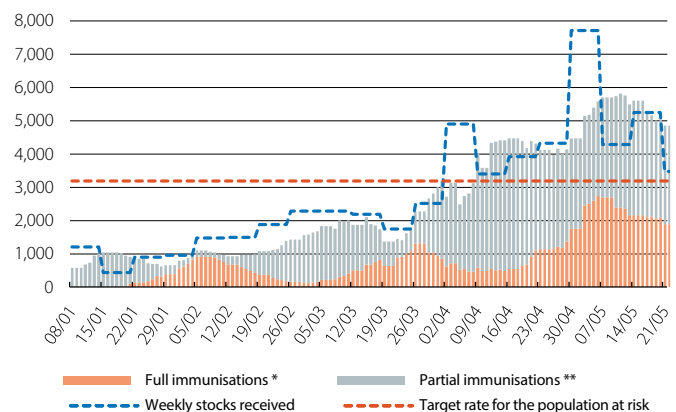
Q2, a turning point for our economy. In April and May, there has been a widespread recovery in the economic indicators thanks to progress in the vaccination roll-out and improvements in the data relating to the pandemic. Moreover, we expect this recovery to continue and to gain momentum in the second half of the year. Hospital pressure has reduced in May to lows not seen since September, and the month ended with more than 95% of the high-risk population (those over 60 years of age) having received at least one dose of the vaccine, marking a key milestone for the continued easing of restrictions. Notably, the vaccination rate remains well above the target rate (to vaccinate 70% of the population aged over 16 by the end of September). This rapid vaccination rate will allow household consumption and tourism (especially domestic and European tourism) to pick up over the coming months, with NGEU funds being added in the second half of the year. Thus, we maintain our forecast that the Spanish economy will grow by 6.0% in 2021, while for 2022 we have increased the expected growth by 0.4 pps (from 4.4% to 4.8%), since the implementation of the NGEU funds anticipated in 2021 will be concentrated in the second half of the year, with their impact focused in the closing stages of 2021 and early 2022.

Significant improvement in economic activity indicators.

The improvement is apparent across a wide range of economic activity indicators. The CaixaBank domestic consumption indicator, which is built using Spanish bank card activity, shows a particularly strong rebound. It registered year-on-year growth of 6% in May (+1% in April and -4% in Q1 2021), coinciding with the end of the state of emergency on 9 May and the subsequent lifting of restrictions. The Purchasing Managers' Indices (PMIs), which reflect business sentiment, were no exception. The PMI for the industrial sector reached 59.4 points in May (57.7 in April), remaining comfortably in expansive territory (above 50 points) and marking the highest rise since May 1998. Its counterpart for the services sector also registered a significant rebound which placed it at 59.4 points (54.6 points in April), the second consecutive month of growth in the sector's activity.

The labour market is added to the list of good news. In particular, the data for May showed a significant advance in social security affiliation and a fall in the number of workers affected by furlough (ERTE) schemes and those registered as unemployed. Affiliation increased by 211,923 people in line with the usual figure for May, which is the month of the year with the highest increase in employment (+217,500 on average between 2016 and 2019). In all, there were 711,000 more people registered with social security than a year earlier, including those on furlough, with a year-on-year growth rate of 3.8% (3.2% in April). If we remove the

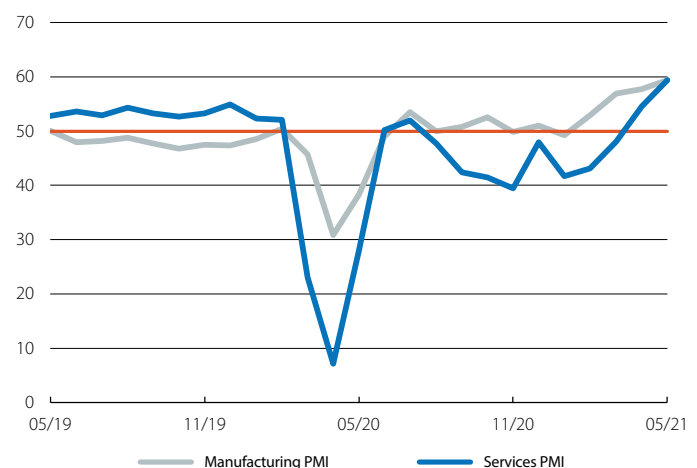
Spain: vaccination rate and weekly receipt of stocks Doses per 100,000 inhabitants (7-day cumulative figure)



Notes: * Full immunisation: 2nd dose of the Pfizer, Moderna or AstraZeneca vaccines, or 1st dose of Janssen-J&J. ** Partial immunisation: 1st dose of the Pfizer, Moderna or AstraZeneca vaccines.
Source: CaixaBank Research, based on data from the Ministry of Health.

Spain: economic activity indicators

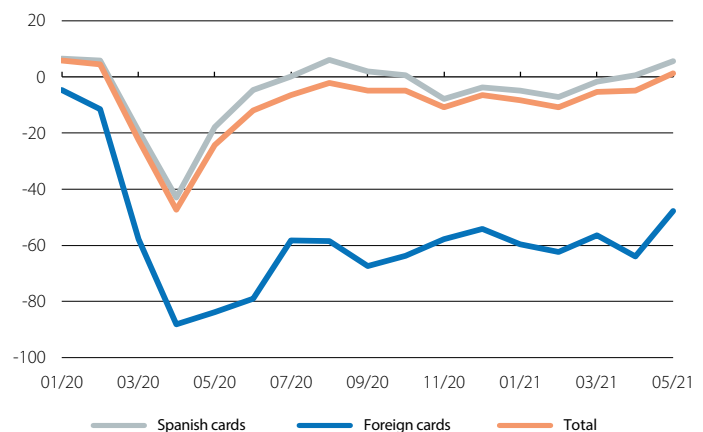
Level



Source: CaixaBank Research, based on data from Markit.

Spain: CaixaBank consumption indicator *

Year-on-year change (%)



Notes: * This indicator includes spending on cards issued by CaixaBank, non-client spending on CaixaBank POS terminals and withdrawals from CaixaBank ATMs.
Source: CaixaBank Research, based on internal data.

base effects, the number of affiliates not on furlough declined by 5.7% year-on-year in May, an improvement over the April data (-6.1%). The trend in registered unemployment has also been positive, with a marked decrease compared to April (-129,378), although the number of unemployed people remains very high (3.78 million). Finally, the number of workers on furlough fell to 542,000 at the end of May (-95,414 compared to the end of April). This is an encouraging trend which we expect to continue over the coming months as the tourism sector recovers.

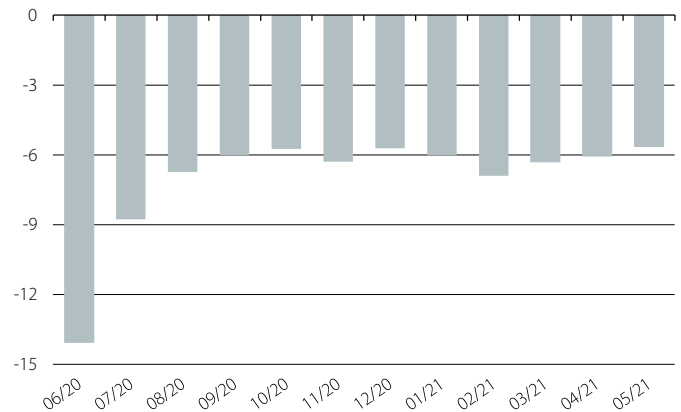
The two sides of inflation: headline inflation, very high and core inflation, contained. Inflation climbed to 2.7% in May (2.2% in April). Pending the breakdown by component, the increase is likely to be down to the rise in fuel prices compared to the declines observed a year ago in the midst of the first wave of the pandemic in Europe. On the other hand, core inflation (which excludes the most volatile components) stood at 0.2%, a modest increase of 2 decimal points over the previous month. Thus, headline inflation remains dominated by the base effects in energy prices, which will fade during the course of the year, while the core components remain at very moderate levels.

The public accounts continue to be affected by COVID-19. In particular, the consolidated general government deficit, excluding public local corporations, stood at 1.3% of GDP in Q1 2021 (0.3% in Q1 2019 and 0.9% in Q1 2020). The increase in the deficit compared to Q1 2020 was driven by the expenditure side, which increased by 4% while income remained virtually flat (-0.1%). The deterioration in the public accounts is expected to diminish during the course of the year as the economic recovery gains traction and the economy refuels, something we see signs of in the April government deficit (15% lower than for the period January-April 2020). Public debt, meanwhile, has continued to rise and ended Q1 at around 125% of GDP, +29.5 pps compared to the end of 2019.

Home prices in Spain show a moderate rise. Valuations of unsubsidised housing rose by 0.2% quarter-on-quarter in Q1 2021 and matched the figure for the previous quarter, while in year-on-year terms its rate of decline moderated (-0.9% versus -1.8% in Q4). Thus, despite the economic crisis triggered by COVID-19, the real estate sector is showing remarkable resilience thanks to a strong starting position among homes (low aggregate indebtedness), a real estate market without excess supply, a decisive economic policy response that has allowed household incomes to be sustained and accommodative financial conditions. It is particularly noteworthy that home sales have followed a very encouraging trend in the first quarter of the year, driven by strong sales of new housing (+10.1% on a cumulative basis in the period January to March compared to the same period in 2019).

Spain: workers registered with social security not on furlough *

Year-on-year change (%)

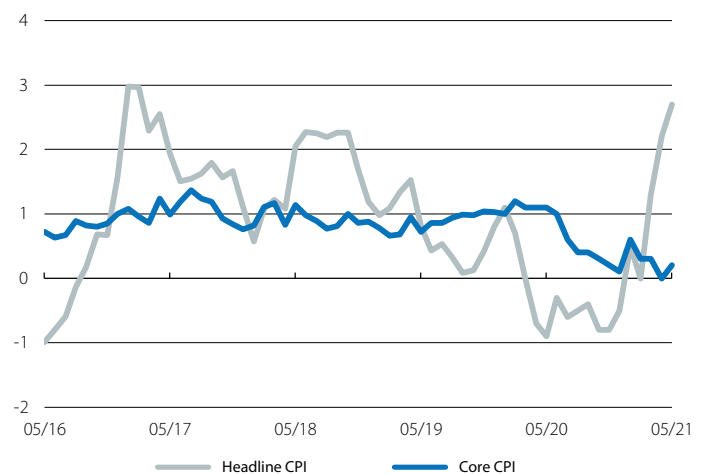


Note: * Social security affiliates who are not affected by furlough (ERTE) schemes (either total or partial). The year-on-year change for May 2021 is calculated by modifying the affiliation figure for May 2020 in line with the average affiliation in May 2019 plus the year-on-year change in February 2020.

Source: CaixaBank Research, based on data from the Ministry for work, migration and social security (MITRAMISS).

Spain: CPI growth

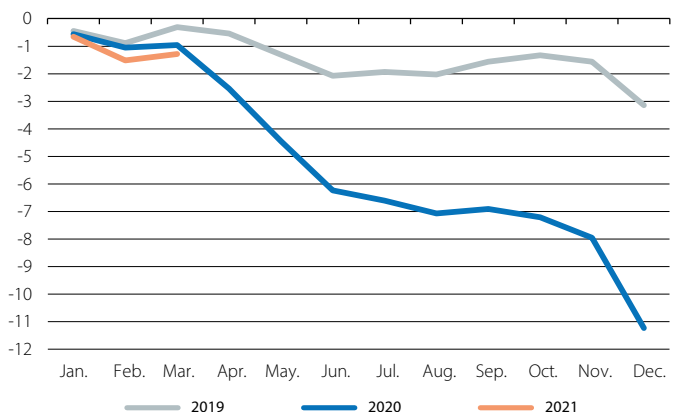
Year-on-year change (%)



Source: CaixaBank Research, based on data from the National Statistics Institute.

Consolidated general government net lending capacity/financing needs (excluding public local corporations)

(% of GDP)



Source: CaixaBank Research, based on data from the General Comptroller of the State Administration (IGAE).

The substitution of cash by cards as a means of payment during the pandemic

- The pandemic has led to cash being replaced by card payments, as shown by an analysis using anonymised internal CaixaBank data.
- This substitution effect is seen both at the aggregate level and at the sector level, particularly in purchases of food and durable goods.

The outbreak of the pandemic has brought about changes in consumption habits. One of them has been the boost which e-commerce has experienced, especially in the durable goods segment, which has resulted in online shopping closing the gap with face-to-face purchases.¹ However, shopping in physical retail establishments is still the most widely used option among most consumers, and this is what we will focus on in this article.

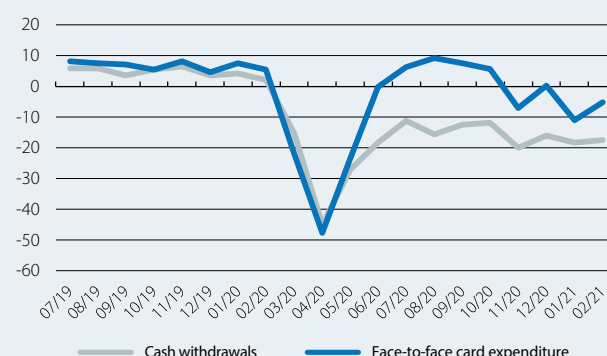
In physical shops, the pandemic has also brought about changes. We will explore them using fully anonymised internal CaixaBank payment data. More specifically, our data allow us to analyse the extent to which cash has been replaced by cards as a payment method (in the rest of the article we will refer to this change of habits as the «substitution effect»²).

In the first chart, we show how face-to-face card expenditure registered on CaixaBank Point of Sale (POS) terminals has evolved relative to cash withdrawals carried out at CaixaBank ATMs (withdrawals serve as an approximation of the use of cash to make payments). As can be seen, the two series follow a similar pattern in the pre-pandemic period and during the months of widespread lockdown in Q2 2020. However, since June 2020, when many of the restrictions were lifted, a gap has opened up between the evolution of face-to-face card expenditure and that of cash withdrawals. This gap was particularly pronounced between June and October 2020 and has persisted since November 2020, albeit with a certain declining trend.³

After following a similar pre-pandemic trend, the opening up of the gap between the two series is indicative of the substitution effect.⁴ In addition, the substitution effect could be even stronger than that seen in the chart: our data are based on cash withdrawals, but there is evidence that during the pandemic households

Spain: face-to-face card expenditure registered on CaixaBank POS terminals versus cash withdrawals at CaixaBank ATMs

Year-on-year change (%)



Source: CaixaBank Research, based on internal data.

have made greater use of cash as a store of value, rather than as a means of payment (as demonstrated in the article cited in footnote 2).

Beyond the aggregate analysis, the shift in consumer behaviour can also be sensed in specific sectors. Unfortunately, due to the anonymous nature of cash payments we have no way of knowing how much cash Spaniards spend in each sector. However, it is possible to address this issue by comparing the evolution of face-to-face card expenditure according to our internal data with the evolution of turnover in department stores offered by the National Statistics Institute at the sector level.⁵ Given that turnover is largely made up of payments made by cash and card, comparing the two series before and during the pandemic can capture the substitution effect at a more disaggregated level (see second and third charts).⁶

1. See the Focus «[The awakening of e-commerce in the retail sector](#)» in the MR12/2020.

2. The ECB recently published an article in which they also document this substitution effect. See A. Zamora-Pérez (2021). «The paradox of banknotes: understanding the demand for cash beyond transactional use». ECB Economic Bulletin, Issue 2/2021.

3. The gap in the average year-on-year growth between the two series was 21 pps between June and October 2020, and 13 pps from November 2020 to February 2021.

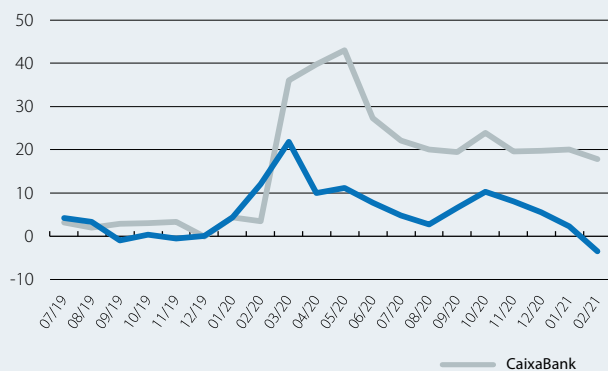
4. To check that our internal data are representative, we have confirmed that the proportion of consumption observed in CaixaBank's Consumption Tracker, both in aggregate and by different age groups, is very similar to that identified in the National Statistics Institute's household budget survey in the categories of goods that are comparable between the two databases (food and beverages, clothing and footwear, and restaurants and hotels).

5. To carry out this comparison, we focus on the food and durable goods sectors (electronics, textiles, furniture, etc.). According to data from CaixaBank's Consumption Tracker, these two sectors accounted for 50.4% of the total face-to-face card expenditure in 2019.

6. More specifically, turnover consists of income received in cash, by card payments, and by banks transfers and direct debits. In the sectors explored, direct debits should account for only a minor portion of total turnover, so they would not significantly alter the conclusions of our analysis.

Spain: face-to-face card expenditure registered on CaixaBank POS terminals versus NSI turnover data (food)

Year-on-year change (%)

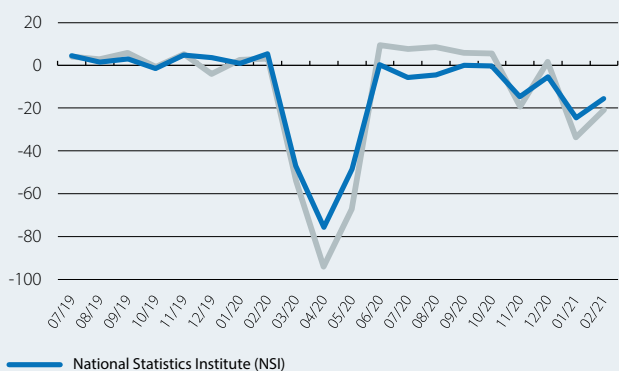


Source: CaixaBank Research, based on internal data and data from the NSI.

As can be seen, the gap is positive and significant for expenditure on food and durable goods when comparing pre-pandemic behaviour with data for the period from June to October 2020 (when there were fewer restrictions on activity). However, when compared to the period between June 2020 and February 2021, the difference is significant only in the food category.⁷ This result is consistent with the information from the first chart which, as we have seen, shows that the gap between face-to-face card expenditure and cash withdrawals has gradually moderated since November 2020.

Spain: face-to-face card expenditure registered on CaixaBank POS terminals versus NSI turnover data (durable goods)

Year-on-year change (%)



In short, our analysis indicates a change of habits among consumers as a result of the pandemic, with cards taking on a more prominent role as a payment method to the detriment of cash. The million-dollar question is to what extent this substitution effect will be structural, something for which we will need to see how the data evolve over time once normality (or the «new normal») is established.

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7. To determine whether the difference between the series based on our internal data and that of the National Statistics Institute (NSI) is significant, we used the difference in differences (DD) statistic: the difference between the gap in year-on-year growth per the internal data and per those of the NSI between two different periods (pre-pandemic and during the pandemic).

Spain's high public debt: outlook and priorities for ensuring a good digestion

Spain's public debt reached 1.34 trillion euros in 2020. This represents a 24.5-pp rise as a proportion of GDP compared to 2019, bringing the figure to 120%. This is an inevitable increase given the fall in GDP and the high levels of public expenditure that have been needed to soften the blow of the pandemic – indeed, the public deficit in 2020 was 10.1% without financial aid to Sareb – but it leaves a bill that will be difficult to digest.

Reducing such a high stock of debt will take time, but in today's economic context there are factors that could help to make the digestion process more bearable than these astronomical figures might suggest.

Firstly, the fall in interest rates (the average cost of government debt ended 2020 at 1.86%, –0.33 pps compared to 2019) and the lengthening of maturities have thrown the economy a major lifeline to help ease the burden of the debt. In particular, the interest bill has followed a clear downward trend and stood at 2.2% of GDP in 2020. This trend should continue over the coming years, as interest rates remain low and as the debt that was issued years ago at higher rates matures. The government's forecasts place the interest bill at 1.8% of GDP in 2023.

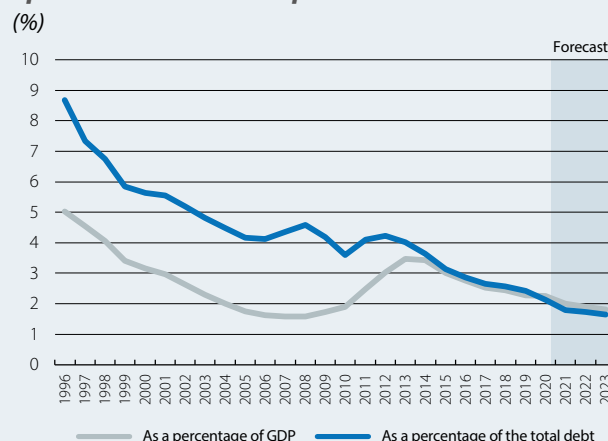
Secondly, the ECB's asset purchase programmes have acquired high volumes of Spanish debt in the secondary markets. These purchases were intensified in 2020 with the launch of the Pandemic Emergency Purchase Programme (PEPP), resulting in the ECB's net purchases of Spanish debt (some 120 billion euros) equating to just over 100% of net financing requirements (109.9 billion euros). Thus, at the end of 2020, public debt held by the Eurosystem represented 37% of GDP, leaving the equivalent of 83% of GDP in the hands of other investors.

Finally, a successful execution of the NGEU programme in the coming years, channelled into the areas that will be most productive and transformational for the economy, would enable a sustained increase in Spain's potential growth, and this in turn could accelerate the reduction of public debt in terms of GDP.

These elements certainly provide room for manoeuvre for a gradual reduction of the imbalances in the public accounts in order to reduce the debt, but it will also be important to take measures to rebalance the public accounts in the medium term.

For illustrative purposes, we have analysed how Spain's public debt will reduce between now and 2031, based on an average primary balance in the next decade in line

Spain: interest cost of public debt



Source: CaixaBank Research, based on forecasts according to the 2021-2024 Stability Programme.

with the one between 2015 and 2019 (–0.2% of GDP, adjusting for the business cycle), when Spain consolidated its last economic recovery. In this exercise we maintain a low-interest-rate environment like the current one, and we assume stable nominal growth in line with the IMF's long-term forecast (3.1%). The results show that the debt would be reduced to 108% of GDP in 2031 (or 114% if the cost of debt were to evolve according to five-year market rate expectations).¹

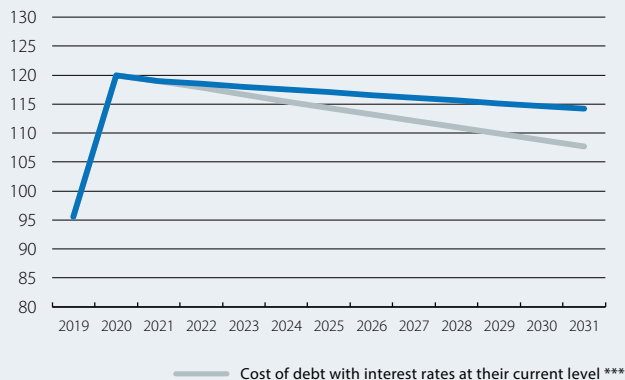
Indeed, the most effective and painless way to reduce public debt is to combine a gradual rebalancing of the public accounts – to avoid eroding the economy's growth capacity – with high and sustained economic growth. An illustrative example of the power of growth is the period 1996-2007, during which high growth (nominal annual growth of 7.4% on average) allowed Spain's public debt to fall by almost 30 pps without spending cuts or major tax increases. In particular, if the average nominal growth of the economy over the next 10 years were 1 pp higher than the IMF's long-term forecast (4.1% instead of 3.1%) and the primary deficit followed a pattern like that of 2015-2019, then public debt would reach 98% of GDP in 2031, assuming the current interest-rate environment were maintained (104% if the cost of debt evolves in accordance with 5-year market expectation rates). This is only slightly above the pre-pandemic ratio, hence the importance of making the most of NGEU

1. Specifically, if we denote the ratio of public debt to GDP in year t as d_t , the primary fiscal balance (without interest charges) as b_t , the interest rate as i_t and nominal GDP growth as g_t , then the level of debt would evolve as follows:

$$d_{t+1} = d_t + \frac{i_{t+1} - g_{t+1}}{1 + g_{t+1}} d_t - b_{t+1}$$

Spain: reduction of public debt with a primary balance of 2015-2019 *

Public debt (% of GDP)



Spain: reduction of public debt with growth in 2022-2031 1 pp higher than expected **

Public debt (% of GDP)



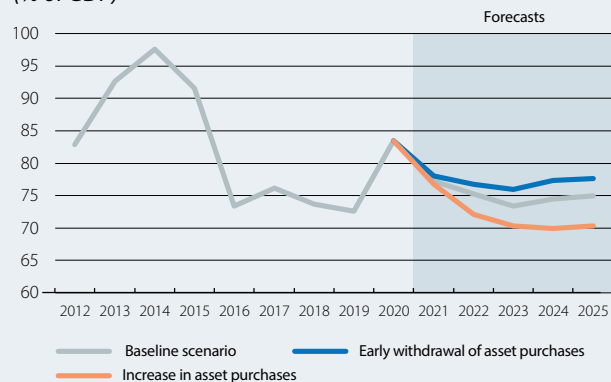
Notes: * Primary balance between 2022 and 2031 in line with the average between 2015 and 2019, adjusted for the business cycle (-0.2% of GDP). Nominal GDP growth of 3.1% , in line with the IMF's long-term forecast. ** The same as in the left-hand panel, but with nominal growth of 4.1% . *** Cost of debt of 1.9% in the scenario based on current rates. **** In the scenario based on forward rates, the cost of debt is projected using the 5-year market expectation rate and is 2.5% on average.
Source: CaixaBank Research.

to achieve high growth that is also balanced and sustainable.

Finally, much has been said about the important confidence effect of the ECB being one of the main holders of public debt. Will this effect continue in the coming years? What will happen from March 2022, when net purchases under the PEPP are scheduled to come to an end? In the last chart, we show the fluctuations of the net Spanish public debt of Eurosystem holdings in 2021-2025 in three different scenarios: the baseline scenario,² a scenario in which net purchases are withdrawn earlier than expected by the market,³ and a third scenario with increased stimuli.⁴ As we can see, in all three scenarios the net public debt of these holdings would lie below 80% of GDP, largely thanks to the significant role of reinvestment of the principal at maturity. Thus, the ECB will continue to be a major holder of Spanish public debt for many years to come, and this will not vary substantially with adjustments to its net purchase programmes over the coming years.

In short, the sustainability of public debt is not compromised thanks to a favourable macro-financial

Spain: net public debt held by the ECB (% of GDP)



Note: * For more details on these scenarios, see the footnotes 1, 2 and 3 of this Focus.
Source: CaixaBank Research.

environment low interest rates, long maturities and support from the ECB. However, in case this exceptionally favourable environment does not last forever, it will be essential to achieve buoyant, sustainable and lasting growth that will ensure that digesting the public debt is bearable.

Javier Garcia-Arenas and Ricard Murillo Gili

2. Net purchases under the PEPP at a pace of 60 billion euros per month until March 2022 and reinvestments of the principal up until the end of 2023.

3. A gradual reduction in the pace of monthly purchases under the PEPP to 30 billion euros in Q1 2022, when net purchases would cease, and reinvestments also extended until the end of 2023.

4. Monthly purchases of 80 billion euros during Q2 and Q3 2021, followed by a reduction to 60 billion during Q4 2021 and also Q1 and Q2 2022, and finally down to 40 billion in Q3 2022. The programme would be extended both in time (six more months) and in quantity, and reinvestments would continue until mid-2024.

Activity and employment indicators

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
Industry									
Industrial production index	0.7	-9.5	-23.2	-5.3	-2.5	2.6	12.4	...	...
Indicator of confidence in industry (value)	-3.9	-14.0	-27.8	-11.9	-11.0	-7.3	-5.7	2.6	4.6
Manufacturing PMI (value)	49.1	47.5	39.4	51.4	51.1	53.0	56.9	57.7	59.4
Construction									
Building permits (cumulative over 12 months)	17.2	-12.8	-12.5	-19.1	-19.9	-19.1	-16.5	...	...
House sales (cumulative over 12 months)	3.6	-12.7	-11.9	-17.8	-17.7	-17.8	-15.7	...	...
House prices	5.1	2.1	2.1	1.7	1.5	...	-	-	-
Services									
Foreign tourists (cumulative over 12 months)	1.4	-36.8	-22.8	-50.7	-72.6	-85.4	-88.0	...	...
Services PMI (value)	53.9	40.3	28.4	47.3	43.0	44.3	48.1	54.6	59.4
Consumption									
Retail sales	2.3	-7.1	-18.3	-3.5	-2.9	-0.4	14.3	41.0	...
Car registrations	-3.6	-29.2	-68.6	-7.5	-13.2	12.7	128.0	1,787.9	177.8
Consumer confidence index (value)	-6.3	-22.8	-27.9	-26.9	-26.3	-22.1	-17.4	-11.6	-9.9
Labour market									
Employment ¹	2.3	-2.9	-6.0	-3.5	-3.1	-2.4	-	-	-
Unemployment rate (% labour force)	14.1	15.5	15.3	16.3	16.1	16.0	-	-	-
Registered as employed with Social Security ²	2.6	-2.0	-4.4	-3.0	-2.0	-1.4	-0.5	3.2	3.8
GDP	2.0	-10.8	-21.6	-8.6	-8.9	-4.3	-	-	-

Prices

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
General	0.7	-0.3	-0.7	-0.5	-0.7	0.6	1.3	2.2	2.7
Core	0.9	0.7	1.1	0.5	0.2	0.4	0.3	0.0	...

Foreign sector

Cumulative balance over the last 12 months in billions of euros, unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
Trade of goods									
Exports (year-on-year change, cumulative over 12 months)	1.8	-10.0	-7.2	-8.9	-10.0	-8.1	-8.1	...	...
Imports (year-on-year change, cumulative over 12 months)	1.0	-14.7	-9.3	-13.3	-14.7	-14.0	-14.0	...	...
Current balance	26.6	7.4	18.1	11.5	7.4	5.0	5.0	...	...
Goods and services	37.5	16.7	27.7	20.3	16.7	15.4	15.4	...	...
Primary and secondary income	-10.9	-9.3	-9.6	-8.8	-9.3	-10.5	-10.5	...	...
Net lending (+) / borrowing (-) capacity	30.8	12.4	22.6	16.3	12.4	9.9	9.9	...	...

Credit and deposits in non-financial sectors³

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
Deposits									
Household and company deposits	5.4	7.5	8.0	9.0	8.7	8.9	7.9	...	...
Sight and savings	10.7	12.3	13.0	13.8	13.7	14.1	12.7	...	...
Term and notice	-13.4	-16.5	-16.1	-16.5	-17.1	-20.4	-21.9	...	...
General government deposits	8.8	1.0	-6.6	5.2	11.8	11.2	14.7	...	...
TOTAL	5.6	7.1	7.1	8.7	8.9	9.1	8.2	...	...
Outstanding balance of credit									
Private sector	-1.5	1.2	1.5	2.0	2.4	2.3	1.9	0.4	...
Non-financial firms	-3.4	4.9	6.1	7.1	7.9	7.8	6.3	1.6	...
Households - housing	-1.3	-1.8	-2.1	-1.8	-1.5	-1.0	-0.7	-0.4	...
Households - other purposes	3.2	0.8	0.7	0.3	-0.1	-1.8	-1.4	-0.6	...
General government	-6.0	3.0	0.1	1.1	8.8	9.5	13.0	16.2	...
TOTAL	-1.7	1.3	1.5	1.9	2.7	2.7	2.6	1.3	...
NPL ratio (%)⁴	4.8	4.5	4.7	4.6	4.5	...	...	...	...

Notes: 1. Estimate based on the Active Population Survey. 2. Average monthly figures. 3. Aggregate figures for the Spanish banking sector and residents in Spain. 4. Period-end figure.

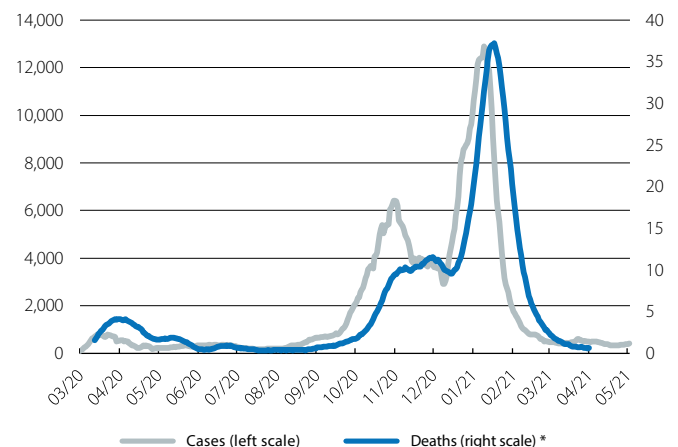
Source: CaixaBank Research, based on data from the Ministry of Economy, the Ministry of Public Works, the Ministry of Employment and Social Security, the National Statistics Institute, the State Employment Service, Markit, the European Commission, the Department of Customs and Special Taxes and the Bank of Spain.

Portugal: favourable medium-term outlook for growth

The pandemic continues to ease as the economy shows strong signs of recovery. According to the available data, the COVID-19 figures continued to improve, with the number of cases falling and the vaccination rate rising. As of 23 May, 32% of the population had already received at least one dose of the vaccine, and in the age groups at greatest risk this figure stood at around 95%. This progress has allowed the country to take the final steps in lifting the lockdown in early May. Thus, with a few exceptions, the economy can now be considered fully operational. In this context, the economic activity indicators registered a strong recovery, with the Bank of Portugal's daily economic activity indicator rising by 7% quarterly on average for the first 52 days of Q2. Consumption-related indicators are also recovering, albeit still below 2019 levels. For instance, in April car sales quadrupled and electronic payments grew by over 50%. Investment, estimated using gross fixed capital formation, grew 3.7% year-on-year in Q1 thanks to the 12.2% rise in investment in machinery and the resilience of construction, which registered a 6.4% growth in investment. On the supply side the improvements are also evident, albeit less pronounced, partly because the latest available figures date back to March when the country was in full lockdown. Although the recent developments are encouraging, the GDP decline in Q1 (–3.3% quarter-on-quarter and –5.4% year-on-year) led to the 2021 growth forecast being revised down to 3.7%, 1.2 pps less than the previous forecast. However, due to the strong growth expected in the second half of this year, the movement for 2022 was in the opposite direction, with growth revised upward to 4.7%, 1.6 pps more than the previous forecast. In short, the medium-term outlook for the Portuguese economy is improving and the cumulative growth anticipated in 2020–2022 is now 0.3% (previously –0.1%).

Signs of slight improvement in the labour market. In Q1, employment declined by 49,000 people compared to the previous quarter. Despite the drop, this is a smaller decrease than that observed during the first general lockdown (–142,600). The unemployment rate, meanwhile, decreased to 7.1% (–0.2 pps compared to Q4 2020). However, the volume of hours actually worked fell by 6.4% quarter-on-quarter, equivalent to two hours less a week on average, due to factors such as quarantines. The unemployment rate, meanwhile, stood at 6.9% in April, while unemployment registered in job centres declined quarter-on-quarter (–8,963 people), in contrast with the increases of the previous four months. However, the figure registered for unemployment is still significantly higher than prior to the pandemic (+108,326 people compared to February 2020). Considering the positive effect of the employment support measures, we

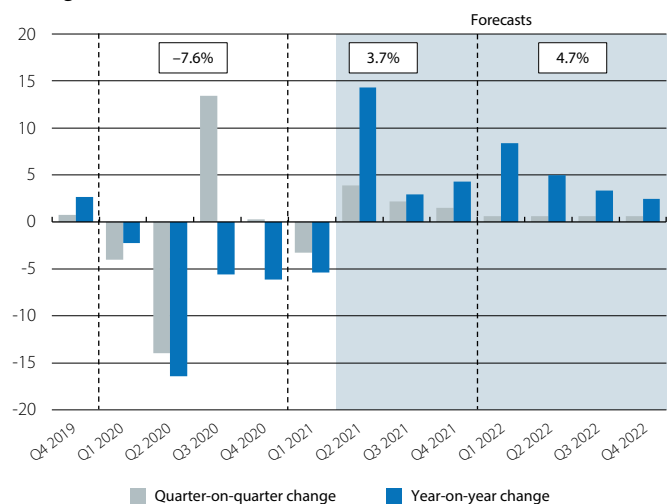
Portugal: COVID-19 cases and deaths
(14-day moving average)



Note: * Per 100,000 inhabitants.

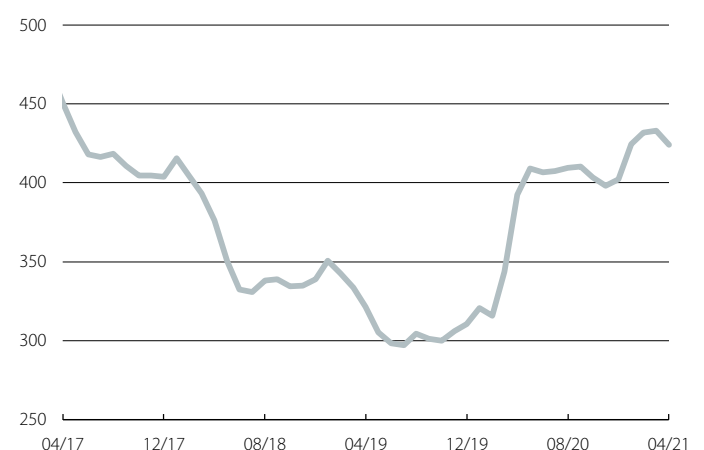
Source: CaixaBank Research, based on data from the Portuguese Directorate General for Health.

Portugal: evolution of GDP
Change (%)



Source: CaixaBank Research, based on data from the National Statistics Institute of Portugal.

Portugal: unemployment registered in IEFP job centres
(Thousands of people)



Source: CaixaBank Research, based on data from the National Statistics Institute of Portugal.

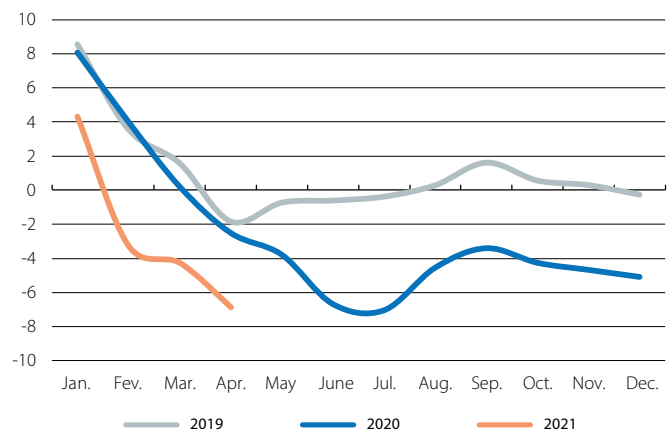
have revised down our forecast for the unemployment rate in 2021, bringing it to 7.8%, although there is significant uncertainty as to the impact of the restrictions on business activity.

The second lockdown and the bolstering of measures to combat the pandemic led to a deterioration in the public accounts in the first four months of the year. In the cumulative balance up to April, the budget deficit stood at 6.9% of GDP, compared to 2.5% in the same period of 2020. This increase is explained by the significant drop in incomes (-6.3% year-on-year) and the significant increase in expenditure (5.2%). Almost all of the expenditure increase was due to current transfers, many of which were linked to the pandemic. In fact, COVID-related measures, including those related to income and expenditure, amounted to 3.4% of GDP. Despite the persistent uncertainty, we anticipate that the impact of these measures on the public accounts will be diluted in the second half of the year with the improvement in the control of the pandemic, progress in the vaccination roll-out and the recovery of the economy.

Tourism is the sector hardest hit by the pandemic. The strict lockdown that was in place for two months of Q1 has been reflected in the number of tourists, which plummeted by 90% compared to 2020 and 2019. However, the outlook for the rest of the year is reasonably positive (up 25% for 2021 as a whole versus the 2020 figures), far from 2019 levels. This improvement is the result of the progress in the vaccination campaigns both nationally and internationally, although it could be affected by the British authorities' decision to exclude Portugal from the list of safe destinations (British tourists are among the most important for Portugal, accounting for around 8% of all tourists in 2019).

The real estate market continues to hold up. According to Confidencial Imobiliário (CI), prices rose 3% year-on-year in April, up 3 decimal points from March. Similarly, valuations rose by 8% year-on-year in April, 1.1 points more than in March. Finally, data from CI regarding property sales in Q1 show growth of 5.1% quarter-on-quarter and 21% year-on-year. This improvement and the persistence of support factors (low cost of financing, prudent management of the end of the moratoria and the extension of the golden visa scheme until the end of the year) suggest that prices will continue to climb in 2021, albeit at a somewhat more moderate pace. Thus, our forecast is that they will grow by 2.3% in 2021 (8.4% in 2020).

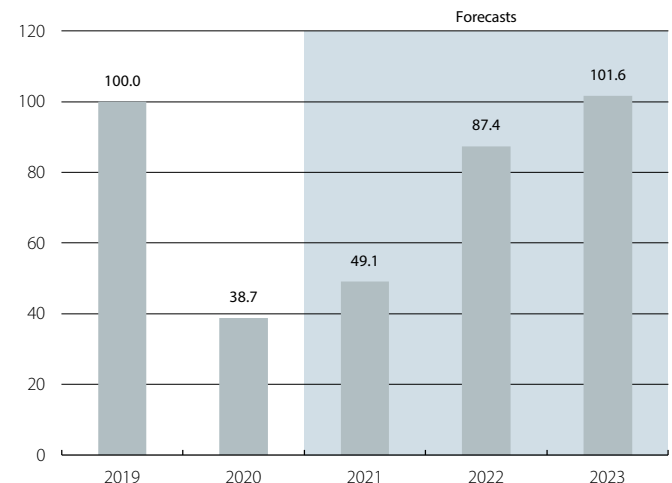
Portugal: general government budget balance * (% of GDP)



Note: * Public accounting data.

Source: CaixaBank Research, based on data from the DGO.

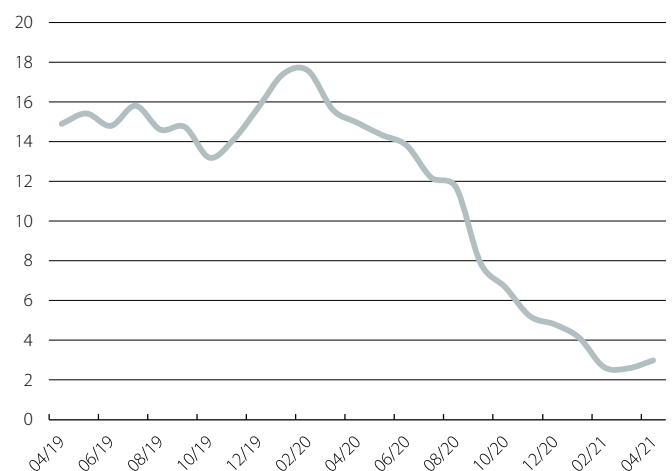
Portugal: tourist number forecasts (100 = 2019)



Note: These forecasts could be adversely affected by the British authorities' decision to exclude Portugal from the list of safe destinations.

Source: CaixaBank Research, based on data from the National Statistics Institute of Portugal.

Portugal: house prices Year-on-year change (%)



Source: CaixaBank Research, based on data from Confidencial Imobiliário.

Activity and employment indicators

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
Coincident economic activity index	1.1	-5.3	-6.1	-6.5	-5.5	-3.9	-3.1	-2.0	...
Industry									
Industrial production index	-2.2	-6.9	-24.1	-0.5	-2.1	-0.9	5.7	36.9	...
Confidence indicator in industry (<i>value</i>)	-3.2	-15.8	-24.6	-19.4	-14.7	-13.6	-12.4	-9.7	-4.7
Construction									
Building permits - new housing (number of homes)	15.2	3.3	23.1	-11.3	12.7	34.4	65.3	...	...
House sales	1.7	-5.7	-21.6	-1.5	1.0	...	...	...	...
House prices (<i>euro / m² - valuation</i>)	10.4	8.3	9.0	6.9	6.0	6.2	6.9	8.0	...
Services									
Foreign tourists (<i>cumulative over 12 months</i>)	7.8	-75.7	-29.7	-57.6	-75.7	-86.3	-86.3	-84.4	...
Confidence indicator in services (<i>value</i>)	12.9	-21.6	-36.1	-37.8	-19.5	-19.1	-19.2	-16.8	-10.3
Consumption									
Retail sales	4.4	-3.0	-12.1	-1.1	-1.9	-7.6	2.2	25.6	...
Coincident indicator for private consumption	2.1	-5.7	-7.0	-7.3	-5.3	-2.4	-1.4	-0.4	...
Consumer confidence index (<i>value</i>)	-8.0	-22.4	-27.7	-26.9	-26.2	-24.4	-23.0	-21.0	-16.7
Labour market									
Employment	1.2	-1.9	-3.6	-3.1	-1.2	-1.3	-0.3	1.2	...
Unemployment rate (% <i>labour force</i>)	6.6	7.0	5.7	8.0	7.3	7.1	6.6	6.9	...
GDP	2.5	-7.6	-16.4	-5.6	-6.1	-5.4	-	-	-

Prices

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
General	0.3	0.0	-0.3	0.0	-0.2	0.4	0.5	0.6	1.2
Core	0.5	0.0	-0.1	-0.1	-0.1	0.5	0.1	0.1	0.6

Foreign sector

Cumulative balance over the last 12 months in billions of euros, unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
Trade of goods									
Exports (<i>year-on-year change, cumulative over 12 months</i>)	3.6	-10.2	-6.8	-7.8	-10.2	-8.0	-8.0	...	...
Imports (<i>year-on-year change, cumulative over 12 months</i>)	6.0	-15.1	-7.6	-12.0	-15.1	-15.7	-15.7	...	...
Current balance	0.8	-2.4	-0.2	-2.2	-2.4	-2.2	-2.2	...	...
Goods and services	1.6	-3.6	-0.6	-3.0	-3.6	-3.3	-3.3	...	...
Primary and secondary income	-0.7	1.2	0.4	0.8	1.2	1.1	1.1	...	...
Net lending (+) / borrowing (-) capacity	2.6	0.3	2.4	0.3	0.3	0.3	0.3	...	...

Credit and deposits in non-financial sectors

Year-on-year change (%), unless otherwise specified

	2019	2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	03/21	04/21	05/21
Deposits¹									
Household and company deposits	5.2	10.1	9.0	9.2	10.1	10.6	10.6	10.6	...
Sight and savings	14.8	18.8	20.1	18.4	18.8	18.5	18.5	18.7	...
Term and notice	-2.9	1.4	-1.0	0.4	1.4	2.4	2.4	2.1	...
General government deposits	5.6	-21.2	-15.7	-13.8	-21.2	-23.6	-23.6	-13.3	...
TOTAL	5.2	9.0	7.9	8.2	9.0	9.4	9.4	9.8	...
Outstanding balance of credit¹									
Private sector	-0.1	4.6	0.5	2.1	4.6	5.1	5.1	5.4	...
Non-financial firms	-3.7	10.5	1.0	4.4	10.5	11.0	11.0	11.0	...
Households - housing	-1.3	2.1	-0.1	0.7	2.1	2.6	2.6	2.9	...
Households - other purposes	16.5	-1.2	1.5	1.3	-1.2	-1.0	-1.0	0.2	...
General government	-4.7	-4.3	-9.7	-5.7	-4.3	-5.1	-5.1	-3.9	...
TOTAL	-0.3	4.2	0.1	1.8	4.2	4.7	4.7	5.1	...
NPL ratio (%)²	6.2	4.9	5.5	5.3	4.9	...	...	...	...

Notes: 1. Residents in Portugal. The credit variables exclude securitisations. 2. Period-end figure.

Source: CaixaBank Research, based on data from the National Statistics Institute of Portugal, Bank of Portugal and Datastream.

Understanding climate risks and their impact on the financial sector

No one should be surprised at this stage to read that climate change is a phenomenon that will have a profound impact on economic activity. As a key component of the economic gears, the financial sector can help to mitigate the impact of climate change, but it can also suffer from its effects. In this article, we set aside the opportunities provided by the agenda to curb climate change in order to focus on the second issue, analysing the impact of climate risks on the financial sector.

Climate risks: how to identify and quantify them

The financial sector's exposure to climate risks is distinguished according to their origin. On the one hand, there are transition risks, which encompass the losses that can be caused by technological or regulatory changes or shifts in consumer preferences aimed at meeting climate targets. Examples include those faced by companies engaged in the exploitation or distribution of coal for energy generation, the fossil fuel that produces the most greenhouse gas emissions (GHG). To meet the European Commission's emission reduction targets (55% by 2030 compared to 1990 levels), these companies will need to adjust their production processes to adapt to a new regulatory environment.

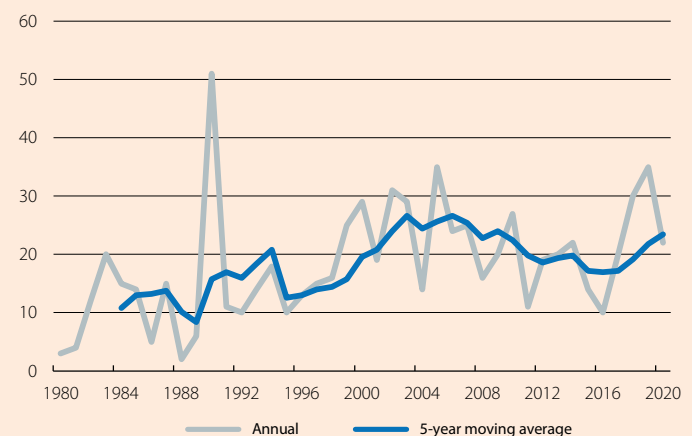
To assess the importance of this risk to the euro area's financial sector as a whole, we must first clarify whether the economic sectors that have been granted the highest volume of credit are also the most polluting, as it is reasonable to assume that companies with higher emissions will be more sensitive to the changes associated with the energy transition. However, it is not currently easy to obtain this information, as only a minority of companies disclose data about their emissions. According to the latest data from the Task Force on Climate-Related Disclosure (TCFD), in 2019 only 26% of the 1,700 companies included in its global sample reported their GHG emissions according to the scope classification,¹ and 33% published climate targets. To overcome this difficulty, in a recent exercise the ECB estimated the GHG emissions in 2018 of the non-financial companies that have received the bulk of bank financing.² Through this exercise, the ECB has concluded that bank loans to the mining and energy sector (jointly responsible for around 20% of total emissions) account for just 5% of the stock of loans to non-financial companies, a relatively low exposure. However, credit to the manufacturing sector accounts for 20% of the total, while its emissions account for 40% of the total, suggesting that exposure in this sector could be a source of climate risk on aggregate (although it should be noted that emissions vary widely within this sector).

On the other hand, physical risks, which could lead to damage to assets through more frequent and severe adverse weather events (such as fires, floods, heat stress or storms), must also be taken into consideration. It is estimated that the economic losses resulting from extreme weather events amounted to 1% of the euro area's GDP in 2019, a figure that could increase over the coming years if these events become more frequent.

Similar to transition risks, the main channel through which physical risks can impact the financial sector is through the sector's exposure to companies most likely to see their activity or assets heavily affected by these risks. For instance, this would include a company with a factory located in an area that is potentially prone to flooding or particularly vulnerable to fire. If these events end up materialising, then these companies' capacity to generate revenues would be reduced, thus denting their credit rating.³ As with transition risks, quantifying exposure to physical risks is not an easy task, but some significant initial steps have been taken in this direction. Following the methodology

Euro area: natural disasters

(Number in units)



Note: The natural disasters accounted for by the IMF include droughts, extreme temperatures, floods, landslides, storms and fires. Most of the ones included in this chart are storms.

Source: CaixaBank Research, based on data from the IMF's Climate Change Indicators Dashboard.

1. Emissions are distinguished between those directly resulting from the company's activity (scope 1), those caused by energy consumption (scope 2) and those generated throughout its value chain, from obtaining raw materials through to the use of its products or services by consumers (scope 3).

2. This exercise takes into account companies with bank loans of more than 25,000 euros, which together account for 4 billion euros and 80% of all credit to non-financial companies. See «Climate-related risks to financial stability». Financial Stability Review (2021).

3. Normally, in the event of default banks can execute the guarantees (or collateral). However, it is important to note that these are also subject to climate risks, of both the physical and the transition variety.

proposed by the Network for Greening the Financial System,⁴ the ECB has used the locations of non-financial companies identified in the analysis of exposure to transition risks and has run them through climate models to estimate their vulnerability to adverse weather events. On this basis, it estimates that 5% of the euro area's stock of corporate bank credit is either already highly exposed to these risks or will be by 2040, while 25% of the balance could see its exposure to these risks increase. By region, in central and northern Europe the main risk is derived from potentially flood-prone areas, while in southern Europe the main risks are fires and heat stress.

What are the next steps?

For financial-sector entities, taking environmental risks into account in their decision-making processes is key for protecting their balance sheets and overall financial stability. To date, with a lack of information and inadequate standardisation in calculating and modelling these risks, financial institutions have only taken them into account on a voluntary basis. However, in 2022 euro area financial institutions will need to assess their exposure to these risks through climate stress tests for the first time, as part of a mandatory exercise that will serve as a learning process for both banks and the supervisor.⁵ In these tests, banks will need to assess their balance sheets over a broad time horizon under various climate scenarios: (i) an orderly transition scenario (climate policies are implemented gradually, allowing the climate targets to be met and limiting the costs of physical and transition risks); (ii) a disorderly transition (policies are implemented late and abruptly, so the costs of transition risks are higher than in the orderly transition), and (iii) «hot house world» (no new policies are implemented and the climate targets are not met, so there are no transition costs but physical costs are extremely high). To get the ball rolling, the ECB has already published preliminary conclusions for the euro area as a whole, showing what the aggregate impact of each scenario would be on the probability of default in various economic sectors. The results show how it is in the last scenario in which the probability of default increases the most for all sectors of the economy. In other words, the physical risks of inaction are potentially more costly to the financial sector than those arising from transition risks. The next step is to be performed individually by the banks in 2022.

While these stress tests will be very useful for marking the way forward in the coming years and for influencing today's financial institutions' decision-making,⁶ the current scarcity of climate information and the path towards improving its quality will render these tests insufficiently complete or representative. For this reason, their results are not expected to affect capital requirements, although they could lead to some recommendations from the banking supervisor. Thus, while much work remains to be done in identifying climate risks, progress is gradually being made in the right direction, both in terms of making the financial system more resilient to climate change and in ensuring that it contributes to the decarbonisation of the economy.

Ricard Murillo Gili

4. See «Case studies of environmental risk analysis methodologies». NGFS Occasional Paper (2020).

5. The Bank of England has recommended that the United Kingdom's major banks perform this same exercise during the second half of 2021.

6. A recent ECB study shows that banks which performed financial stress tests in 2016 reduced their credit risk compared to those that did not. See C. Kok *et al.* (2021). «The disciplining effect of supervisory scrutiny in the EU-wide stress test». ECB Working Paper Series, n° 2551.

Central banks and climate change: to act or not to act

Both individuals institutions can contribute to the fight against climate change. We, as consumers, can play our part as consumers, for example, by choosing products and services with a smaller carbon footprint. The public sector can play an even bigger role, by incentivising investment to improve energy efficiency and develop cleaner technologies and, above all, by introducing a carbon price. What about central banks? What role can they play? In this article, we focus on how the ECB (within the framework in the context of its strategic review) could incorporate climate criteria into its decision-making processes.

Why central banks should be proactive

Central banks in advanced economies – including the ECB – have price stability as their mandate. Some also set targets for other macroeconomic variables, such as employment. In any case, none includes the fight against climate change among their objectives. However, there is broad consensus that climate change has important implications for the economy and price stability, which central banks cannot ignore. As an example, the greater frequency and severity of adverse weather events could increase volatility in economic growth and price fluctuations. Indeed, some models estimate that the mere expectation of this happening is already affects inflation expectations and reduces the natural rate of interest,¹ limiting the (already scarce) margin that monetary policy has to stimulate the economy. For the euro area, this factor poses an additional challenge for the ECB, as the impact of climate change is different across member states.

Moreover, as the EU treaties command, the ECB shall support the general economic policies in the Union, without prejudice to price stability. Since the fight against climate change is one of the European Commission's strategic objectives (the Green Deal and the Next Generation EU recovery fund are a clear sign of this commitment), the ECB not only could, but should, incorporate climate change into its decision-making processes.

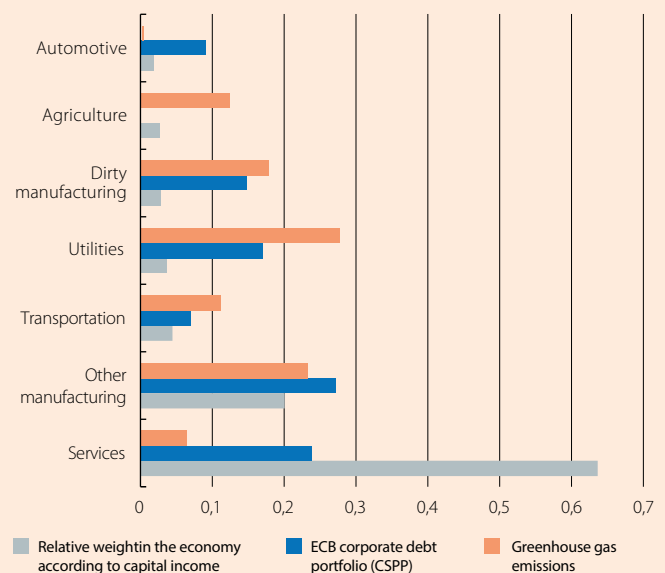
On the other hand, climate risks pose a threat to financial stability. They also pose a threat to the central bank itself, among other reasons because its balance sheet is exposed to climate risks through the sovereign and corporate debt securities it acquires on the market. Thus, in order for monetary policy to be correctly implemented, central banks would also need to properly manage their assets' exposure to climate risks.

Why central banks should not be proactive

There are also arguments against central banks playing an active role in the fight against climate change. On the one hand, it could be interpreted that, by acting in this area, monetary institutions would be overstepping their current mandates. Specifically, while there is broad consensus on the need to tackle climate change in the scientific sphere, it is a political decision. Governments are responsible for collecting society's mandate in this area and, consequently, they are the main players in the sphere of climate policy. In this regard, a central bank taking sides and influencing the allocation of economic resources without a democratic mandate to do so could be perceived as a deterioration of its political independence. Furthermore, a central bank can have only a limited direct impact on emissions.

On the other hand, if a central bank decided to favour assets from less polluting sectors, it could be considered to be in breach of the principle of market neutrality.² That said, in Europe, this principle has some caveats. The EU treaty specifies that the ECB should act in accordance with «the principle of an open market economy with free competition, favouring an

Euro area: debt held by the ECB, relative weight in the economy and emissions by sector



Note: The CSPP (Corporate Sector Purchase Programme) is the ECB's corporate debt security purchase programme. Direct greenhouse gas emissions (Scope 1).

Source: Papoutsis, M. et al. (2021). «How unconventional is green monetary policy?»

1. See A. Dietrich et al. (2021). «The Expectations Channel of Climate Change: Implications for Monetary Policy». CEPR Discussion Paper 15,866.

2. Asset purchases should reflect the eligible market in order to ensure that the relative prices of securities in the market are not distorted.

efficient allocation of resources». In this regard, when there is a market failure (such as the lack of internalisation of climate risks in financial asset prices), resource allocation can be inefficient. Following this argument, the ECB's discrimination of assets based on their exposure to climate risks could be coherent with the treaties in that it helps to mitigate a market failure and improve allocation efficiency. Indeed, the current composition of the ECB's corporate debt portfolio does not comply with the principle of market neutrality. In particular, ECB's corporate bond portfolio adequately replicates the full range of eligible bonds, but not the euro area's economic structure.³ In addition, given the greater participation of emission-intensive sectors in the European corporate bond market, the ECB's corporate bond portfolio has a significant carbon bias.

How could the ECB incorporate the fight against climate change into its mandate?


While central banks can act to help tackle climate change, it seems clear that they should not lead this fight. Instead, they can (within the limits of their mandate) complement the action of governments. In this regard, the ECB has several monetary policy and banking supervision tools at its disposal which it can use to incorporate climate risks into its decision-making processes and operations (see table).

First of all, the ECB could adjust its private asset purchase programme,⁴ only acquiring debt from companies that disclose certain climate information or that have a climate rating. This option, on which there is consensus in the ECB's Governing Council, would improve the transparency of climate information and thus help the financial markets to classify issuers and assets according to their exposure to climate risks (thereby facilitating the internalisation of these risks within asset prices).

The ECB could also go a step further and discriminate on the basis of climate risks, showing a preference for the debt of companies that meet certain climate criteria, or excluding issuers and assets that are more carbon intensive (and thus more in conflict with the EU's decarbonisation targets).⁵ These measures, while more proactive, would be difficult to implement without consistent disclosure of climate risks by companies, a practice which is still in its infancy and only applies to listed companies. They also raise some controversy within the ECB's Governing Council, for several reasons. Firstly, as mentioned, they could conflict with the

Options for the ECB to incorporate climate criteria into its operations

Monetary policy tools	Credit operations (MRO, LTRO, TLTRO, etc.)	Adjust the interest rate according to the purpose for which the credit is intended (e.g. its degree of alignment with the EU green taxonomy).
		Make access to credit conditional on the purpose of the credit (e.g. its degree of alignment with the EU green taxonomy).
		Make access/interest rate conditional on the composition of the collateral provided (depending on its climate risks).
		Link access to the disclosure of climate information by banks/counterparties.
	Collateral	Expand the eligibility of green collateral (e.g. allowing banks to access an additional tranche of funding).
		Adjust the haircut applied to collateral assets according to the associated climate risk/degree of alignment with the EU green taxonomy.
		Exclude assets based on the issuer's climate risk profile or the intensity of the emissions generated by the underlying assets.
		Alignment of the collateral pool of eligible assets with specific climate targets.
		Link eligibility to the disclosure of climate risks by banks/counterparties.
	Asset purchase programme	Exclusion of more carbon-intensive issuers/assets.
		Adjust the asset purchase programme according to assets' climate risk (greater inclination towards green assets/issuers).
		Link purchases to the disclosure of climate risks by issuers/climate rating.
Banking supervision tools	Adjust banks' capital requirements according to their exposure to climate risks.	
	Incorporation of climate risks into the Supervisory Review and Evaluation Process (SPREP).	
	Introduction of climate stress tests/climate scenario analyses for the banking sector.	
	Requirements for greater transparency in the reporting of climate risks by credit institutions.	

 Pro-active measure to spur the green transition

 Measure to protect against climate risks

Source: CaixaBank Research, based on data from the NGFS (2021). «Adapting central bank operations to a hotter world: Reviewing some options».

3. See M. Papoutsi and M. Schneider (2021). «How unconventional is green monetary policy?». Working Paper.

4. Adjustments to the public sector purchase programme (PSPP) would be more difficult to implement, as the ECB would find it difficult to differentiate between policies and due to the lack of country-by-country climate indicators.

5. Some advanced-economy central banks have already moved in this direction: the Bank of Sweden (Riksbank) only buys bonds from companies that meet international sustainability rules and standards, while the Bank of England recently announced that it would adjust its corporate bond purchase programme to incorporate issuers' climate impact.

principle of market neutrality.⁶ Secondly, they are a temporary solution (asset purchases are part of the ECB's expansive policy and theoretically will only be used for a limited time, whereas climate change is a long-term challenge). Thirdly, they could carry a reputational risk for the ECB if issuers turned out to be less green than they report.⁷

The second tool available to the ECB could make adjustments to its credit operations with financial institutions and to its collateral assets in order to favour green exposures, while making brown exposures less attractive. In particular, in addition to making access to finance conditional on the disclosure of climate information, the ECB could also adjust the interest rate of some of these operations depending on what the credit is to be used for. For example, the ECB could launch a green TLTRO financing programme in which the interest rate paid by banks is conditional on an increase in lending to activities aligned with the EU's green taxonomy. Similarly, the ECB could adjust the valuation of the assets presented to it as collateral based on the climate risks it identifies (in fact, the ECB already accepts collateral with different haircuts,⁸ depending on the risk profile). Thus, it could assign a smaller haircut to assets that are more aligned with the EU's green taxonomy.

In any event, given the current lack of consistent and standardised corporate information on exposure to climate risks, we can expect the ECB to act with caution and, at least initially, to prioritise ensuring broad disclosure of climate risks by firms and financial institutions. After all, such a practice would contribute to the internalisation of climate risks in asset prices and would serve as a basis for further action in this area.

Finally, in the field of banking supervision, the ECB has already begun to take steps to improve the quality and quantity of the available climate data, as well as the understanding of climate risks and their impact, so that they can be treated as a financial risk. A key measure in this regard is the publication of the ECB guide on climate-related and environmental risks,⁹ which focuses on the disclosure of climate information by banks, among other aspects. In addition, the ECB has asked banks to draw up action plans to align their practices with the proposals set out in the guide (which will form part of the annual Supervisory Review and Evaluation Process, or SREP). Finally, another key measure is the launch in 2022 of climate stress tests, in which banks will perform a self assessment of their exposure to climate risks and their level of preparedness to address them – although this exercise will not have an impact on banks' capital requirements for the time being.

Roser Ferrer Ripoll and Ricard Murillo Gili

6. Moreover, for now there is still only a limited range of green bonds in existence, so if the ECB were to buy only green bonds, it could not implement its monetary policy properly.

7. The issuance of green bonds does not necessarily translate into lower or decreasing emissions by companies. See T. Ehlers *et al.* (2020). «Green bonds and carbon emissions: exploring the case for a rating system at the firm level». BIS Quarterly Review.

8. A haircut is applied to the value of these assets to mitigate the ECB's liquidity and credit risks.

9. ECB Banking Supervision (2020). «Guide on climate-related and environmental risks».

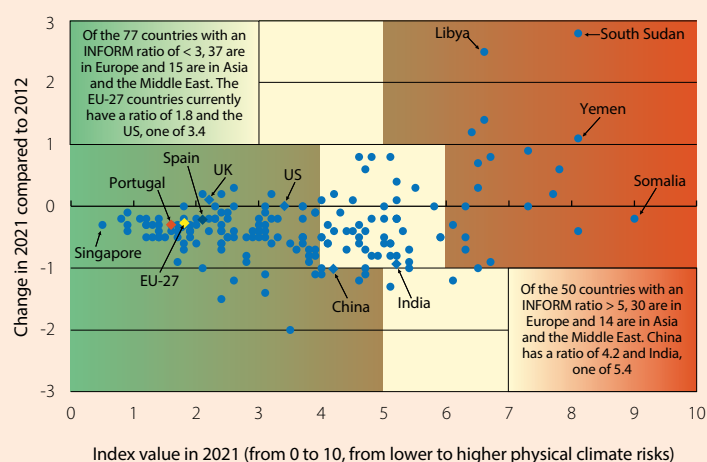
Climate change and financial markets

The COVID-19 pandemic has made it all too clear that events which we consider unlikely to occur, but which have a high impact, can end up materialising. In the coming decades, these phenomena, known as black swans, could become increasingly frequent and even change colour: the serious consequences of climate change could lead to green swans, especially if the transition to a sustainable economic model is not properly managed. In this article, we analyse the impact of this transition on the financial markets by contrasting the effects of an orderly climate transition with those of a disorderly one.

Orderly transition: the importance of separating the wheat from the chaff

In an orderly transition, the transformation towards a decarbonised economy takes place gradually and with adequate planning. As part of this process, there are regulatory changes (such as imposing strict limits on carbon emissions), fiscal changes (such as

INFORM physical climate risk index



Note: Negative values in the vertical axis correspond to countries that have seen their physical climate risks reduce in 2021 compared to 2012.

Source: CaixaBank Research, based on data from the European Commission's Joint Research Centre.

increased taxes on polluting emissions), and technological changes (such as the adoption of fully electric transportation systems or carbon capture techniques). These changes should, on the one hand, lead to an increase in funding needs (both public and private) throughout the transition period and, on the other, promote the development of new metrics and criteria to better identify environmental sustainability across sectors, companies, projects and products. As an orderly transition, the investment needs can be spread over time, so the increase in funding costs should, on average, be small. However, better identification of green investments would lead to an increase in the dispersion of these financing costs and also in the relative price of green assets compared to brown assets (the so-called «greenium»). This, in turn, would also generate persistent effects in the commodity markets, such as price increases among commodities used in less carbon-intensive sectors.¹ At the

same time, new sustainable financing instruments (such as the expansion of markets for green bonds or subsidised loans)² should be given a major boost.

As we are in the initial stage of a climate transition right now, it is worth asking whether some of these effects we have just described are already visible. Indeed, in an environment in which investors are beginning to take climate risks seriously (including both physical and transition risks),³ the internalisation of these risks is beginning to be partially reflected in financial asset prices. That said, it is still early days and their degree of incorporation largely depends on the quality of the information published,⁴ as well as on investors' knowledge.⁵ Specifically, the available evidence shows that exposure and vulnerability to climate risks are being reflected to some extent in the sovereign debt market, penalising regions with greater exposure to physical risks and less capacity to respond. In particular, it has been estimated that the difference between the regions of the world that are most and least exposed to these risks is around 200 bps on average over the period 1995-2017.⁶

1. The rise in the relative price of commodities required for renewable energy generation and storage, such as cobalt, will be significant compared to oil. See International Energy Agency (2021). «The Role of Critical Minerals in Clean Energy Transitions». World Energy Outlook Special Report.

2. Like green bonds, a subsidised loan would involve a «green premium» (e.g. a lower interest rate) for projects that meet certain environmental targets.

3. Physical risks are those arising from the exposure of human activity to the natural system, while transition risks are those arising from the regulation that seeks to bring the economy towards a lower level of greenhouse gas emissions and from the transformation of economic activities to meet environmental targets.

4. See L. Alessia, E. Ossola and R. Panzica (2021). «What greenium matters in the stock market? The role of greenhouse gas emissions and environmental disclosures». Journal of Financial Stability, 54.

5. See P. Krueger, Z. Sautner and L. Starks (2020). «The Importance of Climate Risks for Institutional Investors». The Review of Financial Studies, 33-3, pages 1,067-1,111.

6. See S. Cevik and J.T. Jalles (2020). «This Changes Everything: Climate Shocks and Sovereign Bonds». IMF Working Paper WP/20/79. And M. Painter (2020). «An inconvenient cost: The effects of climate change on municipal bonds». Journal of Financial Economics, 135-2, pages 468-482.

These results suggest that the economic players participating in the sovereign debt market take the scientific evidence on the effects of climate change into account, probably due to the existence of a sufficient quantity and quality of public information on the physical risks of climate change at the geographic level. Indeed, the scientific consensus tells us that the physical risks of climate change will be asymmetric – they will vary depending on each country's geographical location, economic structure and institutional capacity – and non-linear. In addition, we already have a physical risk index for each country, calculated using the INFORM risk model, based on their exposure to these risks, their vulnerability and their ability to mitigate them.⁷ After analysing this index, we can highlight three elements. Firstly, mitigation and adaptation strategies have already had positive effects since 2012 in some regions of the world, as shown in the first chart. Secondly, the geographical distribution of the risk is uneven. Finally, the risk is asymmetric, since more than 70% of cumulative global emissions originate in countries with low physical risks, according to data from the Global Carbon Project. This implies that the physical costs of climate change are highly unlikely to directly affect the worst-emitting regions and that the design and implementation of adaptation and mitigation plans, supported by international cooperation mechanisms, will be essential.

In the case of equities, some asset prices do not seem to adequately incorporate relevant climate risks, which is consistent with the hypothesis that the mechanisms in place for reporting and disseminating more detailed information on climate risks still need to be improved. As an example, there have been no significant changes in the price of assets in the agri-food or real estate sectors, despite the risk of drought or flooding in coastal areas being widely documented.⁸

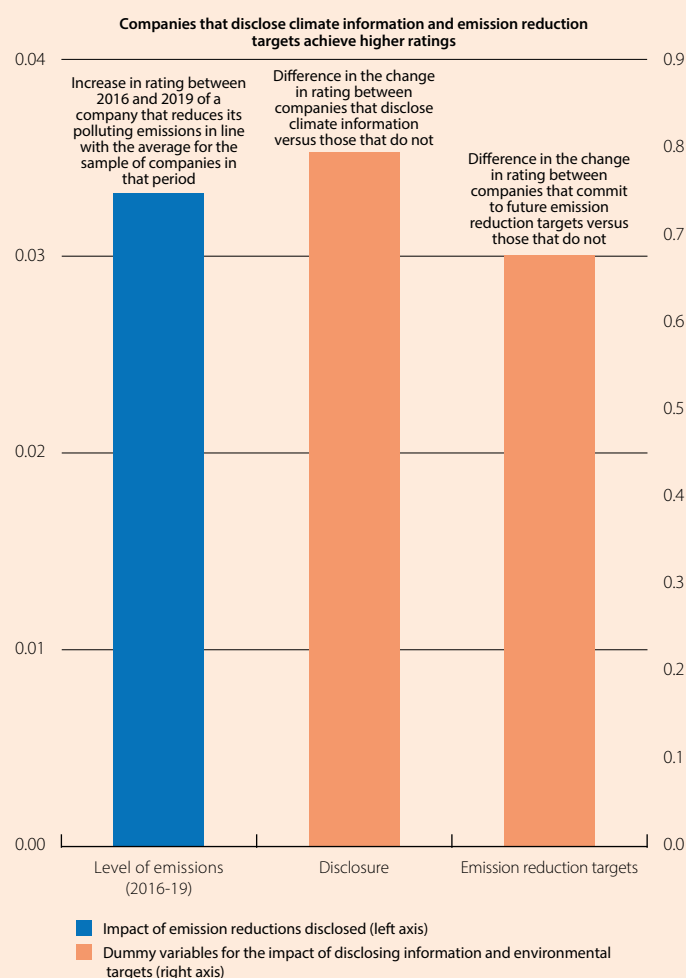
In contrast, in the corporate debt market the internalisation of transition risks is already beginning to be reflected in investors' valuations, as we see an improvement in corporate ratings among European and North American companies which report their carbon emissions, as well as their future targets for reducing those emissions (see second chart). There is also evidence that investors take into account companies' own carbon footprints and penalise the most polluting among them.⁹ Moreover, this «green premium» increases in periods when the public impact of climate change is more visible.

Disorderly transition: more abrupt changes

A disorderly transition would consist of an initial phase of inaction, followed by abrupt changes in the regulatory environment or in fiscal policy in order to contain the risks following the materialisation of extreme weather events and an unmanageable rise in temperatures. In this context, there could be a sudden

Estimated impact on corporate ratings of reporting carbon emissions and future emission reduction targets

Change in the corporate rating in the period 2016-2019 (a higher rating indicates a better assessment of the company)



Note: The chart shows the coefficients from a panel regression of credit ratings and environmental metrics in a sample of annual data from 859 non-financial listed companies in Europe and the US between 2016 and 2019. The coefficients of the disclosure of climate information and future targets (orange columns) are statistically significant.

Source: European Central Bank (2021). «Financial Stability Review - May 2021».

7. See M. Marin-Ferrer, L. Vernaccini and K. Poljansek (2017). «Index for Risk Management – INFORM Concept and Methodology Report». Joint Research Centre - Publications Office of the European Union.

8. See, for example, H. Hong, F.W. Li and J. Xu (2019). «Climate risks and market efficiency». Journal of Econometrics, 208-1, pages 265-281. And A. Bernstein, M. Gustafson and R. Lewis (2019). «Disaster on the horizon: the price effect of sea level rise». Journal of Financial Economics, 134-2, pages 253-272.

9. See E. Ilhan, Z. Sautner and G. Vilkov (2021). «Carbon Tail Risk». The Review of Financial Studies, 34-33, pages 1,540-1,571, in a study on how emissions affect put options of companies that make up the S&P 500.

and significant increase in funding requirements, which in turn would increase the average cost of financing, all accompanied by a dispersion of the costs. Substantial and sudden changes in asset prices would especially affect the assets which bear the brunt of the transition risks, the so-called «stranded assets».¹⁰ These trends could be exacerbated by the difficulties many firms would experience in rapidly adapting to a sudden and large-scale transition.¹¹

Climate transition: how to address it and the value of information

As regulators and ultimate guardians of the global biosphere, nation states face two key challenges in the coming decades. The first is to develop well-designed regulations which facilitate the climate transition in an orderly manner and with market discipline. In other words, the impact on the financial markets will depend on whether this approach is taken or whether a more interventionist model is chosen involving direct corporate penalties. In this latter case, the increase in funding costs could be higher, even in an orderly transition scenario. The second challenge is to come up with mechanisms for reporting climate information that are transparent and accessible to all. The model that the climate transition finally takes may vary, but it is clear that protecting the planet as a global public asset for all largely depends on the production of another asset with the same characteristics, namely accurate and truthful information on climate risks.

Luís Pinheiro de Matos

10. One example of such assets is the reserves of unextracted fossil fuels. See J.F. Mercure *et al.* (2018). «Macroeconomic impact of stranded fossil fuel assets». *Nature Climate Change*, 8, 588–593.

11. See ESRB (2016). «Reports of the Advisory Scientific Committee: Too late, too sudden: Transition to a low-carbon economy and systemic risk». And ESRB (2020). «Positively green: Measuring climate change risks to financial stability».

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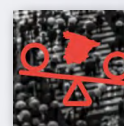
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Design and production: www.cegegglobal.com
Legal Deposit: B. 21063-1988 ISSN: 1134-1920

