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MONTHLY REPORT • ECONOMIC AND FINANCIAL MARKET OUTLOOK
JANUARY 2022



ECONOMIC & FINANCIAL ENVIRONMENT

FINANCIAL MARKETS

Emerging Markets monetary policy: tough times ahead

INTERNATIONAL ECONOMY

China's real estate sector: size does matter

PORTUGUESE ECONOMY

Housing prices in Portugal: solid foundations or feet of clay?

Why is there a shortage of workers in Portugal?

SPANISH ECONOMY

The growth of housing demand, one of the most positive surprises of 2021

DOSSIER: ENERGY PRICES: PRESENT AND FUTURE

The energy crisis in Europe

The Iberian electricity market and the price rally in Spain

Electricity prices are sky high, but what about household bills?

Carbon prices: design and macroeconomic impact

MONTHLY REPORT - ECONOMIC AND FINANCIAL MARKET OUTLOOK

Janeiro 2022

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Monetary shift

At the beginning of the new year, the global economy is once again facing the effects of a new mutation of the virus. Yet again, restrictions on certain activities and lockdowns are threatening to have a direct impact on growth, in addition to the indirect impact through the deterioration of expectations. Nevertheless, just as the virus appears to be becoming less virulent with each new wave, the potential effects on economic activity are also gradually decreasing. The fact that economic agents are adapting their decisions to the new reality marked by the coronavirus, the extensive coverage provided by the vaccines, the development of specific antivirals to combat the effects of COVID-19 and the maintenance of the firepower of the economic policy instruments deployed in the spring of 2020 suggest that, this time, the damage to economic activity can be minimised. Also, while the economic forecasts for Q1 2022 will need to be revised downwards, Omicron is unlikely to significantly alter the underlying trend in the business cycle, and a rebound effect can be expected from the spring onwards.

What is more important is to discern whether in 2022 we will see a turning point in the trends that have marked the past year and which have the potential to disrupt the economic outlook, such as the supply chain problems, inflationary tensions and high valuations in some segments of the financial markets. All of these factors concern the central banks, which by the end of 2021 had begun to adapt their roadmap to a new reality in which the sharp rise in inflation has been the biggest macroeconomic surprise by breaking an inertia that began in the early 1990s. The fact is that we cannot expect to see any major changes in the pattern of prices until at least the second half of the year. In fact, just as there were signs that the congestion in transportation and logistics was beginning to ease, Omicron arrived. The emergence of this new variant will complicate the normalisation of global value chains, cause changes in household consumption patterns (more demand for durable goods and fewer services) and, ultimately, will make it difficult to close the current gap between supply and demand. The longer this anomaly which has been present in the last 12 months persists, the more difficult it will be to reverse the price rally.

In this context, therefore, the monetary authorities will once again take centre stage in the coming months, as different approaches to addressing the new risks emerge. These will include those forced to take a firm response to any signs of price stress (emerging-country central banks, with the exception of Turkey), those who prefer to convey to the market a more gradual path towards monetary normalisation in the medium term that minimises the risk of inflation expectations spiralling out of control (the US, UK, New Zealand, Norway, etc.) and, finally, those who maintain the hypothesis that the recent price patterns are transitory and do not see the need to adjust monetary conditions beyond adapting their purchase programmes to the new reality (the ECB and Bank of Japan). The effects of these divergent responses on the financial markets, and especially on exchange rates, will have to be monitored closely, particularly as the debate on how to approach fiscal sustainability with sights set on the future will be revived this year.

The gap that is opening up between the Fed and the ECB is particularly significant, as the American central bank has abandoned the assumption of transitory inflation and will accelerate tapering with a view to ending its purchases of public debt in March, as well as most likely initiating rate hikes in June this year. Perhaps most significantly, however, five members of the Fed Committee believe that rates in 2024 will be above the equilibrium level (2.5%). This reflects heightened concerns regarding the risk of second-round effects on prices as a result of a stressed labour market. This change in the approach of the world's most important central bank has been diluted by the noise caused by the Omicron variant, but its potential medium-term effects could prove more important than the latest mutation of COVID-19. The irony is that, only a year and a half after the new US monetary policy strategy attempted to buy greater flexibility in order to avoid an unwanted tightening of monetary conditions, it now seems that the pendulum of concern has swung to the other side. All of this places even greater importance on the central banks' communication policies in the coming months.

Chronology

DECEMBER 2021

- 3** The European Commission authorises the disbursement of 10 billion euros of NGEU funds to Spain.
- 8** Tension rises in the Ukraine crisis.
- 28** An agreement is reached on labour reform in Spain.

OCTOBER 2021

- 3** The International Consortium of Investigative Journalists publishes its investigation into accounts in tax havens: the Pandora Papers.
- 15** The delta plus variant of COVID-19 begins to spread.
- 30** G-20 summit at which the global minimum corporate tax is endorsed.

AUGUST 2021

- 1** The withdrawal from Afghanistan by the US and its European allies accelerates and the Taliban regain power.
- 9** The UN's Climate Change report talks of mankind's responsibility in relation to global warming and warns of changes that are irreversible for centuries.
- 17** The European Commission disbursed the first 9 billion euros of the NGEU funds to Spain.

NOVEMBER 2021

- 13** The COP26 Climate Summit closes with a new deal on climate.
- 15** Migration crisis on the border between Belarus and Poland.
- 22** New mobility restrictions in Europe and spread of the Omicron variant.

SEPTEMBER 2021

- 1** The crisis affecting Chinese real estate firm Evergrande intensifies.
- 17** Moody's upgrades Portugal's rating (from Baa3 to Baa2).
- 26** Elections in Germany, bringing an end to the 16-year Merkel era.

JULY 2021

- 6** Iran informed the International Atomic Energy Agency of its uranium enrichment activities, a decision quickly condemned by several countries.
- 15** The COVID-19 delta variant rapidly spreads around the world.
- 23** The 2020 Tokyo Olympic Games are held without any crowds in the stands.
- 30** First sentence in Hong Kong under the controversial national security law.

Agenda

JANUARY 2022

- 3** Portugal: tourism activity (November).
- 4** Spain: registration with Social Security and registered unemployment (December).
- 7** Portugal: employment and unemployment (November).
Euro area: economic sentiment index (December).
- 10** Portugal: turnover in industry (November).
- 11** Spain: financial accounts (Q3).
- 18** China: GDP (Q4).
- 21** Spain: loans, deposits and NPL ratio (November).
- 25-26** Federal Open Market Committee meeting.
- 27** Spain: labour force survey (Q4).
US: GDP (Q4 and 2021).
- 28** Spain: GDP flash estimate (Q4).
Euro area: economic sentiment index (January).
- 31** Spain: CPI flash estimate (January).
Portugal: GDP flash estimate (Q4).
Portugal: industrial production (December).
Euro area: GDP (Q4).

FEBRUARY 2022

- 2** Spain: registration with Social Security and registered unemployment (January).
- 9** Portugal: employment and unemployment (Q4).
Portugal: international trade (December).
- 15** Japan: GDP (Q4).
- 17** Spain: foreign trade (December).
Portugal: industrial production prices (January).
- 25** Spain: loans, deposits and NPL ratio (December).
Euro area: economic sentiment index (February).
- 28** Spain: CPI flash estimate (February).
Spain: balance of payments (December).
Portugal: GDP breakdown (Q4).
Portugal: CPI flash estimate (February).

Are we in a better or worse position than we expected?

Is the global economy in a better or worse position than we expected a year ago? No doubt you already have an opinion on this. We constantly hear qualified people emphatically and assertively stating their opinion about our current situation, about where we are headed and, what is even more difficult but much more tempting to predict, about what we have to do to change our destination. The world is overdiagnosed, as CIDOB states in its latest report on the 2022 outlook. However, those of us who practice this risky sport often focus on the things that are going badly or on what can go wrong. At difficult times like the present, it is hard to highlight what is going well. No doubt there are also those who err on the side of caution to avoid getting it wrong – that way, if things take a turn for the worse, don't say I didn't warn you! But one thing is for certain: it sells more, and on Twitter you get more likes if you criticise the things that are going badly. In short, for all these reasons, many of us have the feeling that the world is worse than we expected. Well, no. It is better – rather a lot better than we expected a year ago, at least in economic terms.

To see this, we must take a step back from the short-term reading of the latest indicators and look at the bigger picture. If we take as a benchmark the growth forecasts which we at CaixaBank Research had for 2021 in January last year, and we compare them with the current estimate, there is no room for doubt. The year has gone better than expected. Globally, a year ago we were predicting GDP growth of 5.5%, and today it looks like 2021 will close with growth of around 6.0%. Indeed, the figures have been better than expected among both developed and emerging countries. We now expect growth of around 5.0% and 7.0% for these two groups of countries, respectively. Of particular note is the improved outlook for the euro area. Beyond the ups and downs we have witnessed throughout the year, in the end we have closed the year with an increase of around 1 pp and we now anticipate growth of around 5.0% for the year as a whole. The forecast in the US has also improved, albeit more timidly.

Among the countries with worse-than-expected GDP growth are Germany, where the industrial sector has been severely affected by the disruptions to supply chains, and Spain. In Spain, growth looks set to have ended last year at 5.0%, just over 1 pp below what we were expecting in January 2021. However, it is not all bad news for our economy. Employment, a variable which right now is just as (if not more) important as GDP for analysing the evolution of the economy, has performed much better than expected.

2021 ended with an effective level of employment (i.e. discounting people still on furlough) clearly above the pre-pandemic level. Not even the most optimistic among us would have dared to propose such a positive outlook at the beginning of last year.

Looking ahead, our growth forecasts for 2022 have also improved across the board, despite fears of the limiting effect of the global trade bottlenecks and the marked rebound in inflation in several countries. One of the key factors, of course, is the effectiveness of the vaccines. Although they are failing to completely prevent the spread of the virus, they have dramatically reduced the pressure on hospitals, which means that we are handling the new waves without having to impose strict restrictions on mobility and activity. During 2021, we have also seen that the major economies have coped relatively well with the harsh restrictions that had to be imposed. The rapid recovery they have shown once these restrictions were lifted allows us to look to the future with more confidence. Finally, we have also found that economic policy, in both the fiscal and the monetary sphere, has responded appropriately to the challenges that the pandemic has presented, and we are confident that this will continue to be the case over the coming year.

In particular, for 2022 we anticipate global growth of 4.4%, half a point above what we were forecasting back in January 2021. Most notably, our forecasts for developed economies over the last 12 months have improved by around 1 pp, although it has improved for emerging economies as well. By country, it is in Germany and Spain that the growth forecast has improved the most, offsetting the poorer performance of 2021. For Spain, we forecast GDP growth of around 6.0% (an improvement of more than 1 pp compared to what we were expecting a year ago), driven by the recovery of the tourism sector, the deployment of the European recovery and transformation funds, and the materialisation of pent-up demand.

There are things that are not going so well, and there are a multitude of things that can go wrong. You can read about it everywhere, including in the pages of this report (last year, the word «risk» appeared in the *Monthly Report* each month as many times as there are pages). But for once, to start the year on a good footing, permit me to dare to highlight what is going well, and the things that can go even better, of which there are plenty. I wish you a happy and prosperous 2022.

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

Financial markets

	Average 2000-2007	Average 2008-2018	2019	2020	2021	2022	2023
INTEREST RATES							
Dollar							
Fed funds (upper limit)	3.43	0.68	1.75	0.25	0.25	0.75	1.50
3-month Libor	3.62	0.90	1.91	0.23	0.20	0.83	1.65
12-month Libor	3.86	1.40	1.97	0.34	0.50	1.24	1.95
2-year government bonds	3.70	0.96	1.63	0.13	0.60	1.00	1.60
10-year government bonds	4.70	2.61	1.86	0.93	1.65	2.15	2.45
Euro							
ECB depo	2.05	0.26	-0.50	-0.50	-0.50	-0.50	-0.50
ECB refi	3.05	0.82	0.00	0.00	0.00	0.00	0.00
Eonia	3.12	0.47	-0.46	-0.47	-0.48	-0.48	-0.48
1-month Euribor	3.18	0.58	-0.45	-0.56	-0.55	-0.51	-0.48
3-month Euribor	3.24	0.74	-0.40	-0.54	-0.53	-0.46	-0.40
6-month Euribor	3.29	0.88	-0.34	-0.52	-0.50	-0.41	-0.28
12-month Euribor	3.40	1.07	-0.26	-0.50	-0.46	-0.35	-0.15
Germany							
2-year government bonds	3.41	0.45	-0.63	-0.73	-0.70	-0.40	-0.15
10-year government bonds	4.30	1.69	-0.27	-0.57	-0.20	0.00	0.20
Spain							
3-year government bonds	3.62	1.87	-0.36	-0.57	-0.27	-0.02	0.31
5-year government bonds	3.91	2.39	-0.09	-0.41	-0.09	0.15	0.45
10-year government bonds	4.42	3.40	0.44	0.05	0.45	0.60	0.85
Risk premium	11	171	71	62	65	60	65
Portugal							
3-year government bonds	3.68	3.66	-0.34	-0.61	-0.40	-0.05	0.34
5-year government bonds	3.96	4.30	-0.12	-0.45	-0.17	0.21	0.54
10-year government bonds	4.49	5.03	0.40	0.02	0.45	0.65	0.90
Risk premium	19	334	67	60	65	65	70
EXCHANGE RATES							
EUR/USD (dollars per euro)	1.13	1.28	1.11	1.22	1.13	1.15	1.19
EUR/GBP (pounds per euro)	0.66	0.84	0.85	0.90	0.85	0.84	0.83
OIL PRICE							
Brent (\$/barrel)	42.3	81.5	65.2	50.2	80.0	65.0	63.0
Brent (euros/barrel)	36.4	62.9	58.6	41.3	70.8	56.5	52.9

Forecasts

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

International economy

	Average 2000-2007	Average 2008-2018	2019	2020	2021	2022	2023
GDP GROWTH							
Global	4.5	3.4	2.8	-3.1	6.0	4.4	3.9
Developed countries	2.7	1.4	1.7	-4.5	5.2	3.8	2.6
United States	2.7	1.6	2.3	-3.4	5.4	3.5	2.6
Euro area	2.2	0.8	1.6	-6.5	5.2	4.1	2.8
Germany	1.6	1.3	1.1	-4.9	2.6	3.7	2.8
France	2.2	0.9	1.8	-8.0	6.7	3.6	2.1
Italy	1.5	-0.4	0.4	-9.0	6.2	4.2	2.6
Portugal	1.5	0.3	2.7	-8.4	4.3	4.9	2.6
Spain	3.7	0.5	2.1	-10.8	4.8	5.5	3.6
Japan	1.4	0.5	0.0	-4.7	1.8	2.4	1.1
United Kingdom	2.9	1.2	1.7	-9.7	6.8	4.7	2.0
Emerging and developing countries	6.5	5.0	3.7	-2.1	6.8	5.1	4.9
China	10.6	8.2	6.0	2.3	8.3	5.7	5.4
India	7.2	6.9	4.8	-7.0	9.2	7.3	7.5
Brazil	3.6	1.7	1.4	-4.1	5.3	0.8	2.1
Mexico	2.4	2.1	-0.2	-8.3	6.2	3.0	2.3
Russia	7.2	1.1	1.3	-3.1	3.8	2.5	2.0
Turkey	5.4	4.9	0.9	1.6	8.3	3.3	3.9
Poland	4.2	3.5	4.8	-2.5	5.7	5.1	3.0
INFLATION							
Global	4.1	3.7	3.5	3.2	4.5	4.3	3.1
Developed countries	2.1	1.6	1.4	0.7	3.0	3.3	1.6
United States	2.8	1.8	1.8	1.2	4.7	5.0	1.9
Euro area	2.2	1.4	1.2	0.3	2.6	2.8	1.5
Germany	1.7	1.4	1.4	0.4	3.2	3.0	1.6
France	1.9	1.3	1.3	0.5	2.1	2.7	1.5
Italy	2.4	1.5	0.6	-0.1	2.0	2.7	1.5
Portugal	3.0	1.2	0.3	0.0	1.3	2.2	1.7
Spain	3.2	1.4	0.7	-0.3	3.1	4.5	1.2
Japan	-0.3	0.4	0.5	0.0	-0.2	0.8	0.7
United Kingdom	1.6	2.4	1.8	0.9	2.4	3.0	1.7
Emerging countries	6.7	5.6	5.1	5.1	5.6	5.0	4.1
China	1.7	2.6	2.9	2.5	1.0	1.7	1.4
India	4.5	7.7	3.7	6.6	5.0	5.5	4.5
Brazil	7.3	5.9	3.7	3.2	7.3	7.5	3.5
Mexico	5.2	4.2	3.6	3.4	5.4	3.9	3.5
Russia	14.2	8.2	4.5	4.9	6.3	4.4	4.1
Turkey	27.2	9.1	15.5	14.6	17.3	14.2	11.0
Poland	3.5	1.9	2.1	3.7	5.0	5.3	3.2

Forecasts

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

Spanish economy

	Average 2000-2007	Average 2008-2018	2019	2020	2021	2022	2023
Macroeconomic aggregates							
Household consumption	3.6	-0.1	0.9	-12.2	5.5	5.6	3.5
Government consumption	5.0	1.0	2.0	3.3	3.1	0.9	-0.5
Gross fixed capital formation	5.6	-1.9	4.5	-9.5	3.3	6.2	5.6
Capital goods	4.9	0.0	3.2	-12.9	14.1	6.0	4.7
Construction	5.7	-3.8	7.1	-9.6	-3.0	6.1	6.1
Domestic demand (vs. GDP Δ)	4.3	-0.3	1.3	-9.2	4.9	4.6	3.0
Exports of goods and services	4.7	2.9	2.5	-20.1	12.0	9.2	5.7
Imports of goods and services	7.0	0.1	1.2	-15.2	12.2	6.6	4.2
Gross domestic product	3.7	0.5	2.1	-10.8	4.8	5.5	3.6
Other variables							
Employment	3.2	-0.7	2.6	-7.6	6.7	5.2	3.0
Unemployment rate (% of labour force)	10.5	20.0	14.1	15.5	15.0	13.9	12.9
Consumer price index	3.2	1.4	0.7	-0.3	3.1	4.5	1.2
Unit labour costs	3.0	0.3	3.1	5.0	1.3	1.9	1.7
Current account balance (% GDP)	-5.9	-0.5	2.1	0.8	1.1	1.7	1.7
External funding capacity/needs (% GDP)	-5.2	-0.1	2.6	1.1	1.7	1.8	1.9
Fiscal balance (% GDP) ¹	0.4	-6.3	-2.9	-11.0	-7.7	-5.3	-3.9

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

Forecasts

Portuguese economy

	Average 2000-2007	Average 2008-2018	2019	2020	2021	2022	2023
Macroeconomic aggregates							
Household consumption	1.7	0.3	3.3	-7.1	5.0	4.8	2.4
Government consumption	2.3	-0.5	2.1	0.4	4.6	0.8	0.2
Gross fixed capital formation	-0.3	-1.2	5.4	-2.7	4.4	6.2	8.0
Capital goods	3.2	2.7	1.6	-6.2	9.2	5.7	8.1
Construction	-1.5	-3.5	7.7	1.6	1.5	4.5	4.3
Domestic demand (vs. GDP Δ)	1.3	-0.2	3.0	-5.6	5.1	4.5	3.2
Exports of goods and services	5.2	4.0	4.1	-18.7	9.4	10.4	5.9
Imports of goods and services	3.6	2.5	5.0	-12.2	11.0	8.7	6.8
Gross domestic product	1.5	0.3	2.7	-8.4	4.3	4.9	2.6
Other variables							
Employment	0.4	-0.6	1.2	-1.9	2.7	0.7	0.2
Unemployment rate (% of labour force)	6.1	11.8	6.6	7.0	6.6	6.5	6.4
Consumer price index	3.0	1.2	0.3	0.0	1.3	2.2	1.7
Current account balance (% GDP)	-9.2	-3.2	0.4	-1.2	-0.7	-0.5	-0.4
External funding capacity/needs (% GDP)	-7.7	-1.9	1.2	0.1	1.2	1.8	1.9
Fiscal balance (% GDP)	-4.6	-5.5	0.1	-5.8	-4.3	-2.9	-1.5

Forecasts

The resilience of the financial markets in 2021

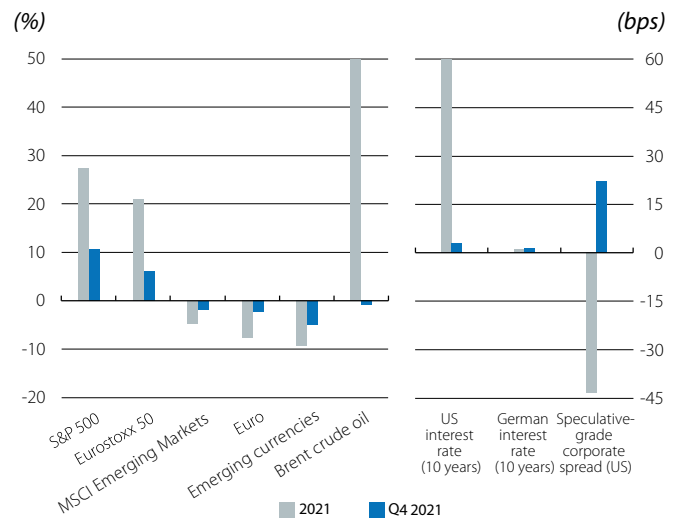
The risk appetite improves with sights set on the new year.

As was the case for much of the year, in December investors kept a close eye on developments relating to the two hot topics: the pandemic and inflation. On the one hand, the relative lower severity of the Omicron variant, despite its rapid spread around the world, alleviated some of the fears of its impact on the economic recovery. On the other hand, the heightened inflationary pressures in almost all countries accelerated the repositioning of the central banks. In advanced economies, details of the withdrawal of the monetary stimulus were discussed, while in emerging economies official rate hikes became widespread (see the Focus on «Emerging Markets Monetary policy: tough times ahead» in this same *Monthly Report*). In this environment, investors, while still behaving with a certain degree of caution, overcame the uncertainty of the previous month and increased their preference for risk-bearing assets. Thus, the financial markets concluded the year showing signs of the resilience acquired after the outbreak of the pandemic, with widespread gains registered in the main advanced-economy stock markets and in cyclical commodity prices, as well as in the yields of higher rated debt.

The Fed accelerates the tapering process and forecasts three rate hikes in 2022. In the long-awaited last FOMC meeting of the year, the Fed settled investors' doubts and outlined the key aspects of its medium-term roadmap. With a more hawkish tone than usual, the entity ceased describing the current high inflation as transitory and admitted the error of its initial estimates. Moreover, in view of the strength of economic activity growth, it predicted that full employment could be achieved in 2022. Under these assumptions, the monetary authority decided to keep the reference interest rate in the 0.00%-0.25% range, and made two important announcements for investors. Specifically, it announced that beginning in January it will accelerate the rate of tapering (asset purchases will be reduced at a rate of 30 billion per month) and that it will bring forward the end of net asset purchases to March. Also, the dot plot reflected how most members of the Committee would now advocate three rate hikes in 2022 (at CaixaBank Research we expected two), followed by three more in 2023, raising the average official rate to the 1.50%-1.75% range. The Fed's less accommodative stance favoured an upward shift in the US yield curve, with the 10-year treasury yield climbing to around 1.50% (a cumulative increase of +60 bps in the year to date).

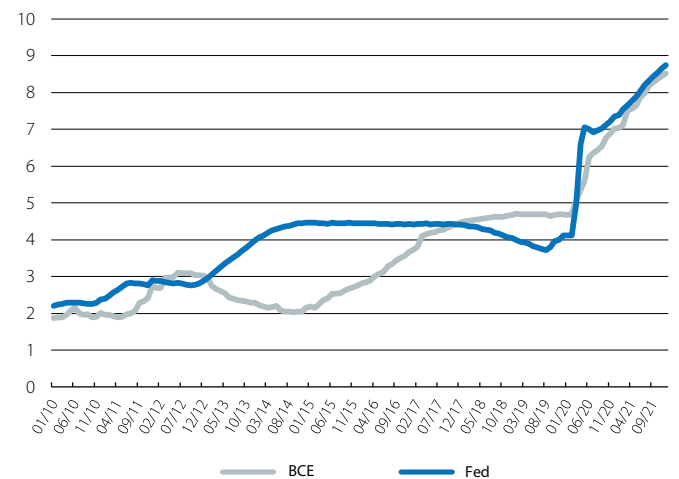
The ECB will also carry out tapering, but with an European flavour. Like in the US, the steady recovery of the euro area economy and the persistence of inflationary pressures enabled the ECB to announce its plan to reduce net asset

Selected financial variables: change in 2021 and in Q4 2021



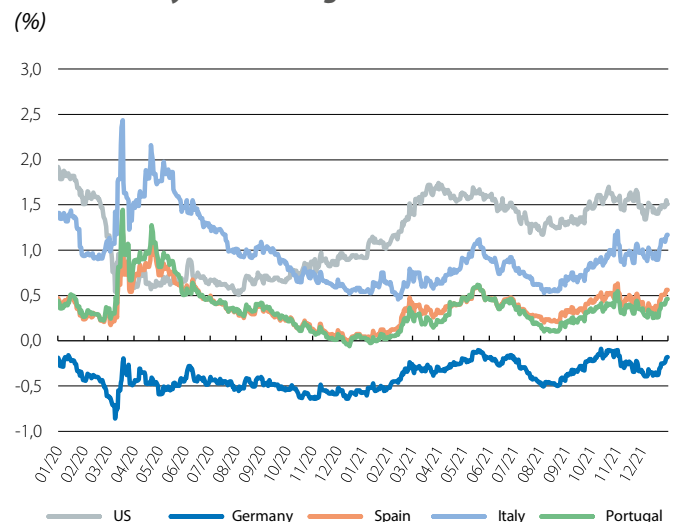
Source: CaixaBank Research, based on data from Bloomberg.

Central bank balance sheets (EUR and USD trillions)



Source: CaixaBank Research, based on data from Bloomberg.

Yields on 10-year sovereign debt



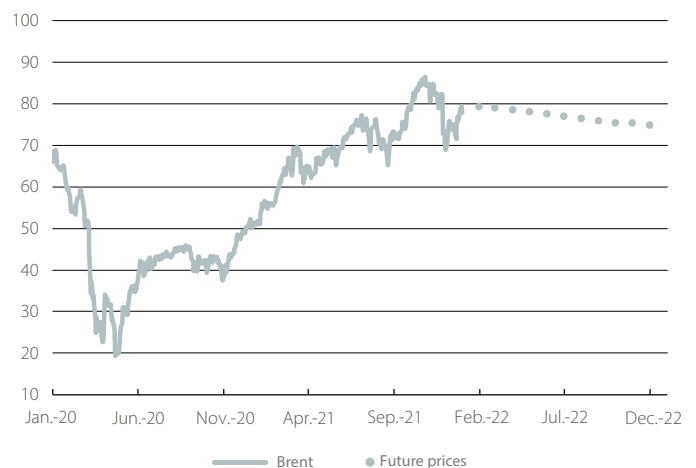
Source: CaixaBank Research, based on data from Bloomberg.

purchases in 2022, albeit with a far less aggressive target than the Fed's. In particular, it anticipated a reduction in the rate of purchases under the PEPP (probably to 50 billion euros per month) in Q1 2022, with the programme coming to an end by the end of March. Meanwhile, it plans to increase net purchases under the APP in Q2 and Q3 to 40 and 30 billion euros, respectively, bringing them back down to 20 billion in October. All in all, the ECB's balance sheet would be expanded by 480 billion euros in 2022, representing less than half of the volume of assets acquired in 2021. On inflation, Christine Lagarde noted that it will remain high during the first half of 2022, before stabilising below 2% in 2023 and 2024. It also kept its forward guidance unchanged, which would place the first rate hike at the end of 2023. Despite such statements, the rally in the euro area's CPI in December and the increase in inflationary pressures led some investors to expect a possible rise in deposit rates at the end of 2022, which pushed up the sovereign yield curves in Germany and the periphery.

Oil prices are back on the rise. Following the notable decline in November, the price of a barrel of Brent recovered to 78 dollars in December and amassed a 50% appreciation in the year as a whole. The publication of reports that allayed fears over the economic damage of Omicron, the decline in crude oil inventories in the US, and opposition from OPEC and its allies to modifying their production plans despite demands from several world powers provided support for the rise in the price per barrel in the final month of the year. In the currency markets, meanwhile, the strength of the US economy, coupled with the measures announced by the Fed, provided continued support for the strength of the dollar against other currencies. The euro ended the year at its lowest value in 17 months (-6.9% against the dollar). Emerging currencies also saw their depreciation accentuate in Q4, particularly in the case of the Turkish lira, which fell more than 30% against the dollar in the same period.

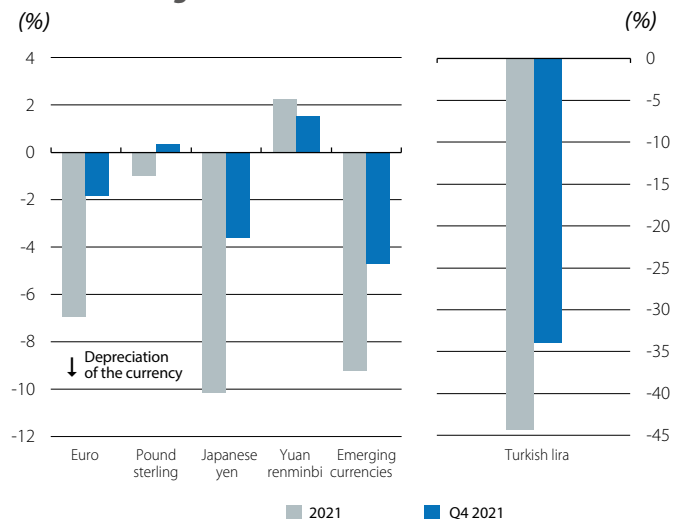
The stock markets consolidate a year of significant gains. The relative improvement in investor sentiment provided a boost to the major equity indices in December, ending the month with widespread gains as well as culminating a year of significant growth. Neither the inflationary pressures, nor the record level of infections driven by the Omicron variant, nor the announcements of monetary stimulus withdrawal prevented the S&P 500 (at record highs) and the EuroStoxx50 (+26.9% and +21.0% in the year, respectively) from registering their third best annual earnings of this century in 2021. The good performance of the technology, energy and financial sectors, as well as better than expected corporate earnings, were the main catalysts for the stock market rally in the closing stages of the year. The signs were less encouraging in the case of the emerging-market indices (MSCI Emerging Markets, -4.6% in the year), which were held back by the slower pace of recovery after the pandemic and the interference of idiosyncratic risks.

Oil: price of a barrel of Brent (Dollars per barrel)



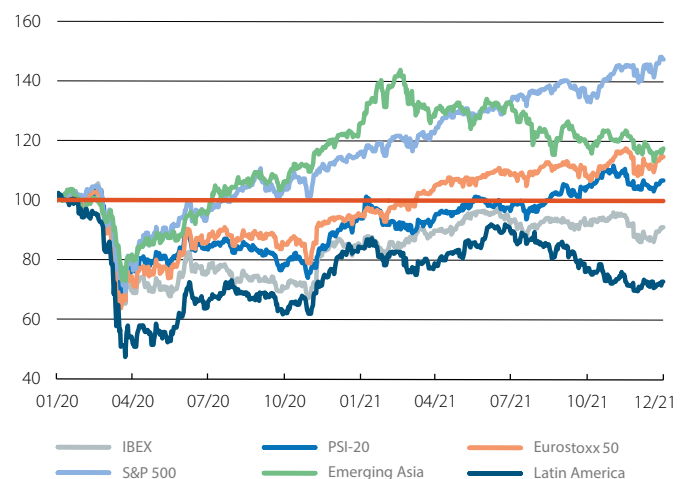
Source: CaixaBank Research, based on data from Bloomberg.

Currencies against the dollar



Source: CaixaBank Research, based on data from Bloomberg.

Main international stock markets Index (100 = January 2020)



Source: CaixaBank Research, based on data from Bloomberg.

Emerging Markets monetary policy: tough times ahead

The phase that followed the initial outbreak of the COVID-19 pandemic has been marked by the easing of mobility restrictions, the revival of economic activity and the roll-out of the vaccines. But the recovery cycle has also been accompanied by the rapid rise in commodity prices and the formation of supply chain bottlenecks. The sum of these factors has influenced the pace at which emerging economies have recovered, which has been eminently uneven, and has also fuelled the rise in inflation in many of these countries. In this scenario, beginning in the spring of 2021 many central banks began to shift their monetary strategies towards a less accommodative setting, anticipating the movement in developed countries.

Factors behind the central banks' actions

If we stop to consider the reasons for the response of these monetary authorities in the current scenario, we find several important triggers. The first is the depreciation of their currencies during times of great uncertainty due to the pandemic. It should be mentioned that the central banks of these countries tend to react more decisively to changes in their currencies' exchange rates than those of advanced economies.¹ Secondly, as we noted earlier there has been a sharp rise in inflation rates. As early as Q2 2021, in one third of these countries (such as in the case of Turkey, Russia, Brazil, Mexico, India, the Philippines, Hungary and Poland) the CPI was above their central banks' inflation targets,² primarily as a result of rising food and energy prices and the composition of their basket of goods that make up the index³ (see first chart).

Thirdly, the fiscal deficits have deepened during the pandemic, putting what were already large sovereign debts in some countries (e.g. South Africa and Brazil) under even greater pressure while also exacerbating their funding needs. Although the number of countries that have been able to borrow in their local currency has grown in recent years, some still have much of their foreign debt denominated in dollars, leaving them heavily exposed to shifts in the Fed's policy. Finally, each emerging-economy central bank has a desire to raise its interest rates before the Federal Reserve,⁴ in order to

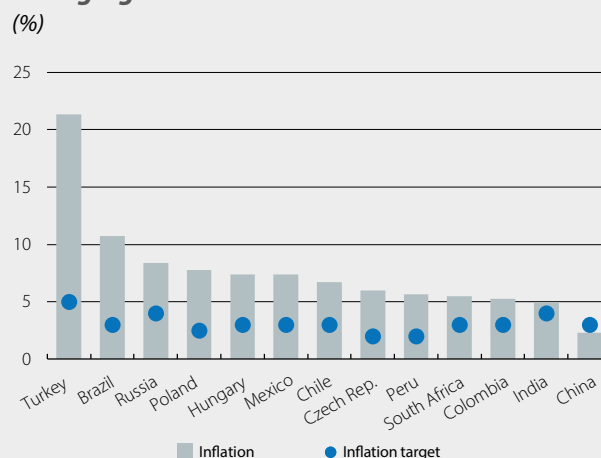
1. This reaction function has been modified with the development of these economies' financial markets, although it is still greater than in advanced economies. See: «Monetary policy rules in emerging market economies: issues and evidence (bis.org)» and «The Response by Central Banks in Emerging Market Economies to COVID-19 (rba.gov.au)».

2. 65% of emerging countries have monetary policies based on inflation targets.

3. See the Focus «The rise in commodity prices and its impact on inflation» in the MR09/2021.

4. Since the 1980s, numerous studies have shown that the spread between the yields of US treasuries and those of emerging-market sovereign bonds has largely determined the demand for emerging-country debt.

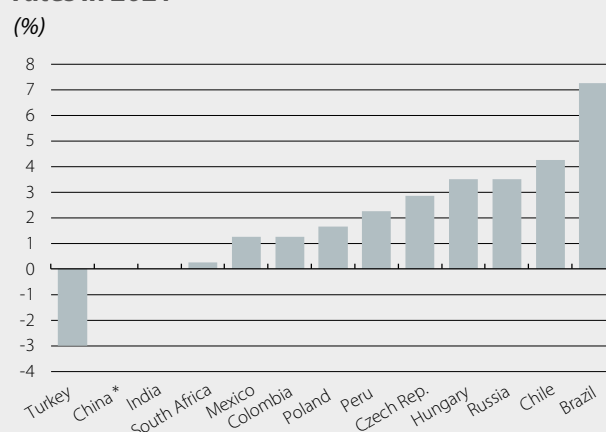
Emerging markets: inflation rates



Note: Data as of 22 December 2021.

Source: CaixaBank Research, based on data from central banks and Bloomberg.

Emerging markets: change in benchmark interest rates in 2021



Notes: *In China, the loan interest rate has been used as the benchmark. Data as of 22 December 2021.

Source: CaixaBank Research, based on data from central banks and Bloomberg.

avoid significant outflows of foreign capital from their economies and a tightening of their financial conditions (as occurred in 2013 when the Fed announced the withdrawal of its monetary stimulus during the episode known as taper tantrum).

Monetary policy today

Since the summer, the monetary normalisation cycle has accelerated in many emerging economies. The best example of this is found in the major economies of Latin America. Their monetary authorities are having to manage the surge in inflation in an environment in which governments are maintaining the pressure on public spending, in order to combat poverty which has been

aggravated by the pandemic, and in which the idiosyncratic aspects of each country⁵ have fuelled instability in their currencies' exchange rates. These circumstances have led Brazil's central bank to implement the biggest hike in global interest rates in 2021 (see second chart), to give just one example. Furthermore, the need to keep medium-term inflation expectations in check has influenced the decisions taken by the central banks of most major emerging European economies (Russia, Poland, Hungary and the Czech Republic).

At the same time, there is a group of central banks that have not yet raised their interest rates, but have left the door open for similar actions in the coming months. This is the case with the monetary authorities of the major emerging Asian economies (India, Indonesia, the Philippines, Malaysia and Thailand), where inflation has been more contained in the face of the volatility of energy prices and the supply chain disruptions.

However, there are two major exceptions to such monetary policies: Turkey and China. In the case of the former, since September the Turkish central bank has been pursuing an unorthodox monetary policy (it has lowered interest rates by 500 bps to 14%) despite year-on-year inflation being four times higher than the central bank's target and the fact that its currency is going through an episode of significant weakness. In the latter case, the People's Bank of China has chosen to keep its monetary policy unchanged since the beginning of the pandemic and has relied on the sporadic use of alternative tools, such as the required reserve ratio, to ease the yuan's appreciation against the dollar.

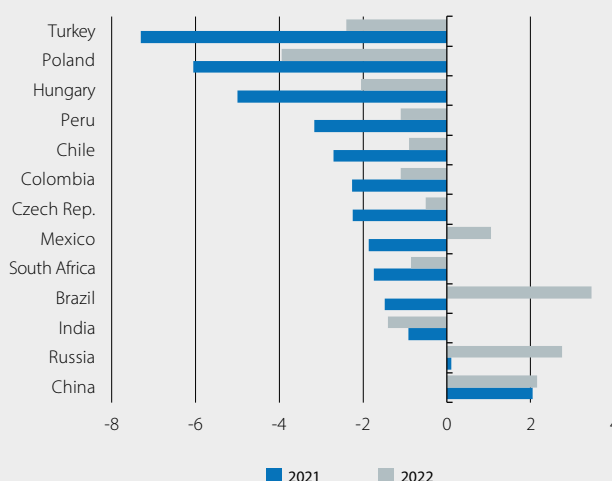
Monetary policy in the future

Looking ahead to the new year, all the early indicators suggest that the cycle of rate hikes in the emerging bloc will continue over the coming quarters. This is also the perception of investors, who anticipate that the monetary adjustment may be quicker and more sudden than in advanced economies. The steepening of sovereign yield curve slopes in the major emerging countries, which exceeds that of the US yield curve, shows just how sensitive those countries are to the Fed's monetary normalisation process. However, this trend is also a sign of their monetary authorities' intention to boost their credibility vis-à-vis investors, and above all to maintain the inflow of investment into their local-currency debt.

This time, however, the Fed's monetary policy orientation is expected to have a more contained effect on the

5. These aspects include risks over the sustainability of Brazil's public debt, Mexico's dependence on foreign capital flows, Chile's excessive fiscal deficit, political instability in Peru and the pressure of foreign debt in Colombia.

Emerging markets: real interest rates (%)



Notes: Real rates are the difference between monetary policy interest rates and the inflation rate. Data as of 22 December 2021.

Source: CaixaBank Research, based on data from Bloomberg.

finances of emerging economies after the pandemic than it did in 2013, owing to the fact that a greater portion of their foreign debt is now denominated in local currency, as we noted earlier.⁶ On the other hand, despite the recent interest-rate rises, real interest rates in most emerging countries have remained in negative territory and have provided a relatively favourable environment for the economic recovery, a situation that is expected to continue next year (see third chart).

What is clear is that 2022 is not going to be an easy year for emerging country central banks, as is always the case when the Fed initiates a process of raising interest rates.

6. Issues of debt in local currency have accelerated since the crisis of 2013, as they provide some protection for domestic finances in the event of rising external tensions. See «The Response by Central Banks in Emerging Market Economies to COVID-19 (rba.gov.au)».

Interest rates (%)

	31-December	30-November	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	-0.57	-0.57	0	-2.7	-4.6
1-year Euribor	-0.50	-0.51	0	-0.2	-1.4
1-year government bonds (Germany)	-0.64	-0.79	15	7.1	3.5
2-year government bonds (Germany)	-0.62	-0.74	12	8.0	9.8
10-year government bonds (Germany)	-0.18	-0.35	17	39.2	35.1
10-year government bonds (Spain)	0.57	0.40	17	51.8	44.6
10-year government bonds (Portugal)	0.47	0.33	14	43.5	38.9
US					
Fed funds (upper limit)	0.25	0.25	0	0.0	0.0
3-month Libor	0.21	0.17	4	-2.9	-2.3
12-month Libor	0.58	0.38	20	24.1	25.0
1-year government bonds	0.38	0.22	16	27.2	27.5
2-year government bonds	0.73	0.57	17	61.1	56.6
10-year government bonds	1.51	1.44	7	59.7	58.4

Spreads corporate bonds (bps)

	31-December	30-November	Monthly change (bp)	Year-to-date (bp)	Year-on-year change (bp)
Itraxx Corporate	48	57	-10	0.1	1.3
Itraxx Financials Senior	55	68	-13	-4.2	-2.4
Itraxx Subordinated Financials	108	130	-22	-3.0	0.5

Exchange rates

	31-December	30-November	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
EUR/USD (dollars per euro)	1.137	1.134	0.3	-6.9	-5.8
EUR/JPY (yen per euro)	130.900	128.320	2.0	3.7	4.0
EUR/GBP (pounds per euro)	0.841	0.853	-1.3	-5.9	-6.5
USD/JPY (yen per dollar)	115.080	113.170	1.7	11.5	10.3

Commodities

	31-December	30-November	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
CRB Commodity Index	578.3	564.2	2.5	30.3	35.4
Brent (\$/barrel)	77.8	70.6	10.2	50.2	64.0
Gold (\$/ounce)	1,829.2	1,774.5	3.1	-3.6	0.8

Equity

	31-December	30-November	Monthly change (%)	Year-to-date (%)	Year-on-year change (%)
S&P 500 (USA)	4,766.2	4,567.0	4.4	26.9	30.1
Eurostoxx 50 (euro area)	4,298.4	4,063.1	5.8	21.0	21.9
Ibex 35 (Spain)	8,713.8	8,305.1	4.9	7.9	7.0
PSI 20 (Portugal)	5,569.5	5,433.1	2.5	13.7	21.4
Nikkei 225 (Japan)	28,791.7	27,821.8	3.5	4.9	7.5
MSCI Emerging	1,232.0	1,212.4	1.6	-4.6	0.7

The evolution of the pandemic will continue to set the pace of the global economy

Omicron variant complicates the start of the year and affects the scenario for the whole of 2022. Just when we thought the worst was behind us, the rapid spread of the Omicron variant reminds us that the pandemic is far from being under control. All the indicators suggest there will be a slowdown in economic activity in Q1 2022, both in developed and emerging economies. This weak start to the year may mean that the slowdown we expect for 2022 may be even more pronounced than we estimated at the close of this report. The global outlook is therefore once again conditioned by the evolution of the pandemic, although progress in the vaccinations, the availability of antiretroviral drugs and economic agents' adaptation to operating in a context with restrictions and high uncertainty could soften the impact that any measures taken in the event of further outbreaks may have on growth.

The bottlenecks will persist over the coming months. The deterioration in the pandemic will prolong the global supply chain problems, at least in the short term, as China continues to pursue a zero-COVID policy. Indeed, freight costs are back on the rise and we will have to wait and see to what extent this upward pressure on prices is offset by the reduced pressure from demand in a context of economic slowdown. We see a high risk that the fall in inflation will be slower than expected in the early months of the year, especially in advanced economies, but we continue to anticipate a correction from spring onwards.

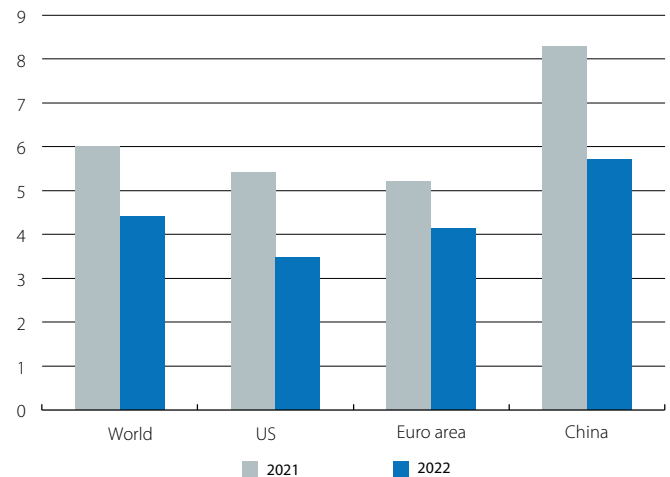
US

Inflation will drive the economic agenda in 2022. The US is also experiencing a resurgence of the pandemic, and while the restrictions are not being tightened for the time being (unlike in the euro area), it still poses a potential risk to growth. Another element to keep a close eye on is inflation, which is rising sharply. In particular, the rise in inflation expectations explains the Fed's clearly hawkish attitude, despite the risks that the pandemic poses for the growth outlook (see the Financial Markets section). Furthermore, besides the rising cost of inputs in the face of the persistent bottlenecks, the cost of labour is also on the rise. In this regard, the activity rate is still below its pre-pandemic level, which is partly attributable to changes in the behaviour of workers during the pandemic, resulting in a record number of job vacancies in excess of 10 million.

Workers could be increasing their bargaining power. To illustrate this shift, in a recent survey by Gallup, 68% of workers approved of unions, the highest percentage in the last 57 years. This increased «class awareness» in a context of a clear imbalance in the labour market explains why attractive wages are being demanded in order to return to or remain in

GDP: forecasts

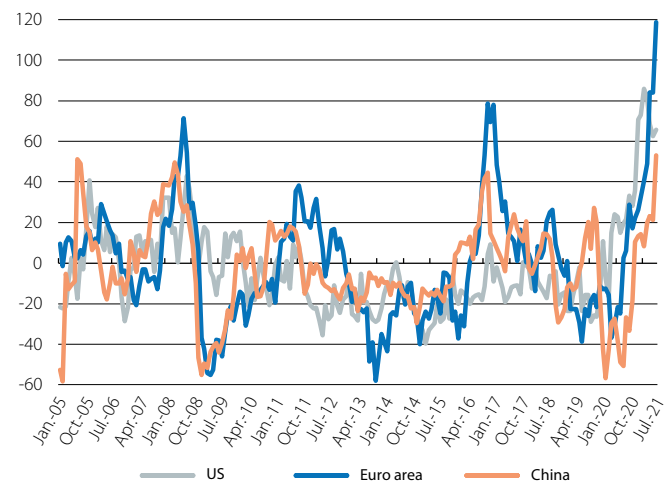
Annual change (%)



Source: CaixaBank Research, based on internal data.

Inflation surprise index

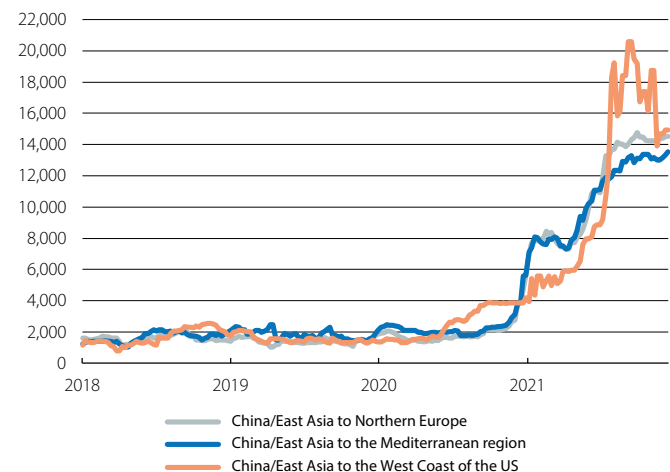
Deviation from the expectation



Source: CaixaBank Research, based on data from Refinitiv.

Cost of shipping a container

Dollars for a 40-foot container



Source: CaixaBank Research, based on data from Refinitiv.

job positions. Furthermore, those jobs are expected to guarantee workers' purchasing power in the current context of rising prices (inflation stood at 6.8% in November, a 40-year high). We will have to wait and see to what extent the rise in inflation ends up affecting consumers' purchasing power, as for the time being they are still financing this spending with their pent-up savings. However, this «buffer» has now been largely used up: the savings rate has gone from almost 20% of disposable income in January to 6.9% in November, slightly below the pre-pandemic average.

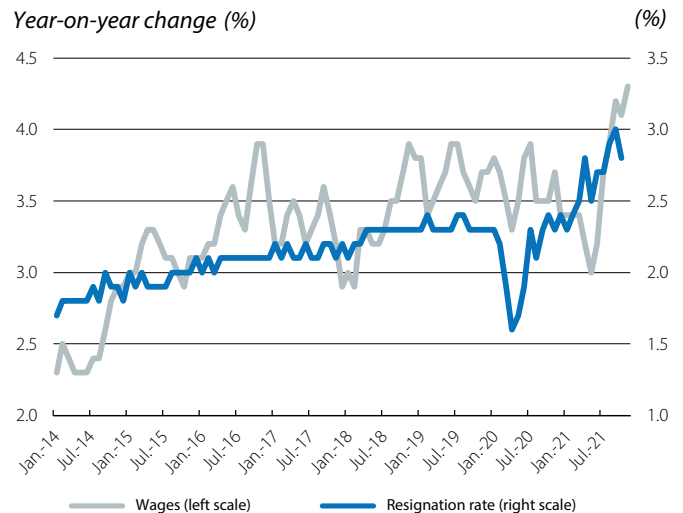
Biden's new fiscal plan, run aground. In this context, Joe Biden's 1.75-trillion-dollar Build Back Better fiscal plan, focusing on higher social spending and climate measures, stalled in the Senate in the face of a lack of support from Democratic Senator Joe Manchin. This rejection raises serious doubts over whether the plan's economic measures can be approved in their current form.

EURO AREA

The spread of the Omicron variant forces a tightening of restrictions. The steady progress of the vaccinations has not prevented a worrying resurgence of the virus, forcing authorities to impose strict restrictions in a context marked by the persistence of global supply problems. Germany is the source of the greatest doubts, not only because of the strict measures imposed to contain the virus but also due to its high exposure to the bottlenecks: around 90% of the country's manufacturing sector acknowledged suffering supply problems in October, compared to just over 50% in the euro area on average. Furthermore, at the European level there is a possibility that some of the projects included in the national recovery plans drawn up within the NGEU framework will need to be postponed due to a lack of materials. Thus, the risks to growth in Q1 2022 are clearly skewed to the downside.

Meanwhile, the risks affecting short-term inflation are skewed to the upside. In addition to the inflationary pressures generated by the bottlenecks, electricity prices are still on the rise driven by the sharp rally in gas prices, which have increased seven-fold since January and continue to break records. This pattern is due to the fact that gas inventories were at historically low levels at the onset of winter, at the same time as geopolitical tensions with Russia increased (Russia supplies 30% of Europe's gas) as a result of Germany halting the certification process for the Nord Stream 2 pipeline. However, the pressure on inflation should subside after the spring as the global bottlenecks are resolved, given that, unlike in the US, wages in the euro area are contained. On the one hand, this is due to the fact that collective labour agreements in Europe span longer periods of time and include ceilings on the indexing mechanisms that are used. On the other hand, the temporary employment adjustment mechanisms have prevented job losses but at the cost of limiting workers' ability to demand better wages as the economy has reopened. As a result, the year-on-year growth negotiated in wages fell to an all-time low in Q3. We therefore

US: labour market

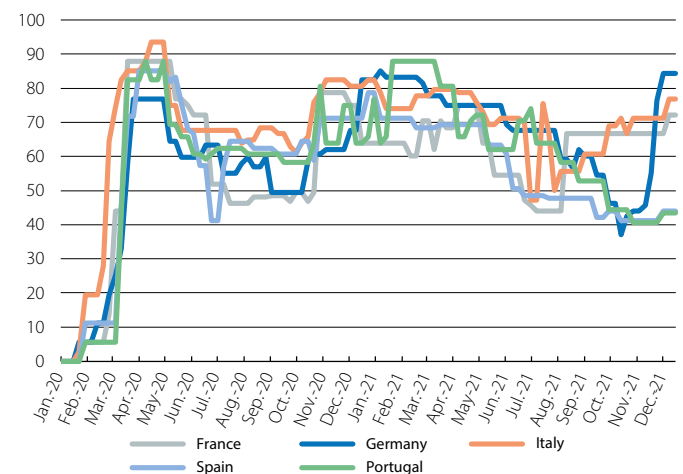


Note: Wages correspond to the three-month moving average, average growth (according to data from the Atlanta Fed).

Source: CaixaBank Research, based on data from Refinitiv.

Euro area: lockdown stringency index

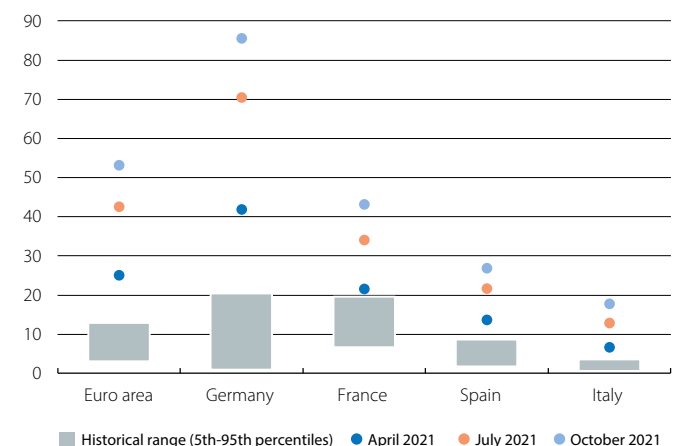
(0 = no restrictions; 100 = maximum restrictions)



Source: CaixaBank Research, based on data from Refinitiv.

Euro area: shortage of materials and/or equipment, factors limiting production

(% of responses)



Source: CaixaBank Research, based on data from the European Commission.

believe that the inflation rally will be temporary and we anticipate a gradual decline from the current highs (4.9% in November-December). However, we will have to keep a close eye on developments in wages in a context in which some countries are beginning to note problems in finding labour.

EMERGING ECONOMIES

In China, a significant slowdown is expected in 2022.

The zero-COVID policy, the energy constraints and the problems in the country's residential sector are some of the biggest challenges the economy will face in 2022. In this regard, the measures taken to correct the excesses of the residential sector (which accounts for over 12% of China's GDP), which restrict developers' ability to borrow, already explained the sector's marked correction experienced during 2021, and this trend will continue in 2022 (see the Focus «China's real estate sector: no room for indifference» in this same *Monthly Report*). The need for these measures is justified in the face of Evergrande's failure to pay two coupons in early December, which has led Fitch to cut its rating to RD (Restricted Default).

The outlook for the country's foreign sector is brighter, bolstered by the Regional Comprehensive Economic Partnership (RCEP) which came into force on 1 January 2022. This is the world's largest free-trade agreement, signed by China and 14 other Asia-Pacific economies (India withdrew in 2019): it accounts for some 30% of the world's population and GDP. In any case, it should be recalled that both fiscal and monetary policy have sufficient room to act in the event of a greater than expected deterioration in economic activity.

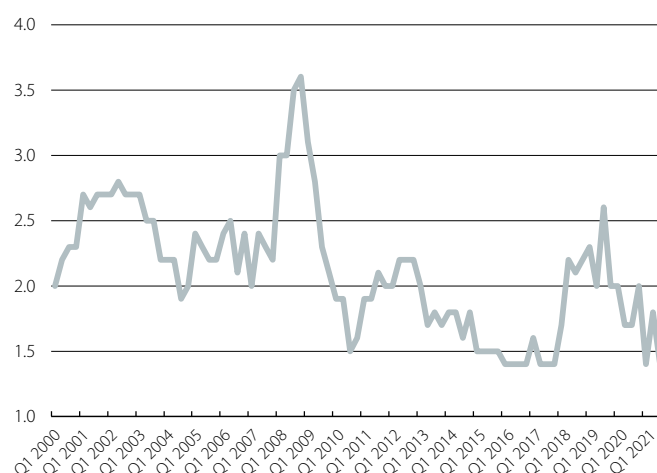
Other emerging economies are facing 2022 with a mixed outlook, partly conditioned by their vulnerability to the foreign sector. The outlook is generally better for the Asian economies, while for Russia (2.5% vs. 3.8% in 2021) and above all Brazil (0.8 % vs. 5.3%) we anticipate a substantial slowdown, partly as a consequence of the interest-rate hikes initiated in early 2021 to contain inflation. Mexico will also experience a substantial slowdown in 2022 (3.0% vs. 6.2%) due to the negative impact on investment of the nationalist rhetoric of López Obrador's government and the interest-rate hikes expected to occur once the Fed initiates its own rates hikes. Thus, the risks affecting the outlook for emerging economies are skewed to the downside. The main risk factor lies in the normalisation of monetary policy in advanced economies, especially in the US, because of the instability this could generate in certain countries. Indeed, some may even be forced to choose between sustaining growth and avoiding capital outflows (see the Focus «Emerging Markets monetary policy: tough times ahead» in this same *Monthly Report*). Among the most vulnerable ones are Brazil, Egypt, Argentina, South Africa and Turkey. In fact, Turkey has been dominating the headlines in recent weeks due to the sharp depreciation of the lira and the unorthodox measures taken to control this movement (see the Financial Markets section).

Europe: gas price * (Euros per megawatt hour)



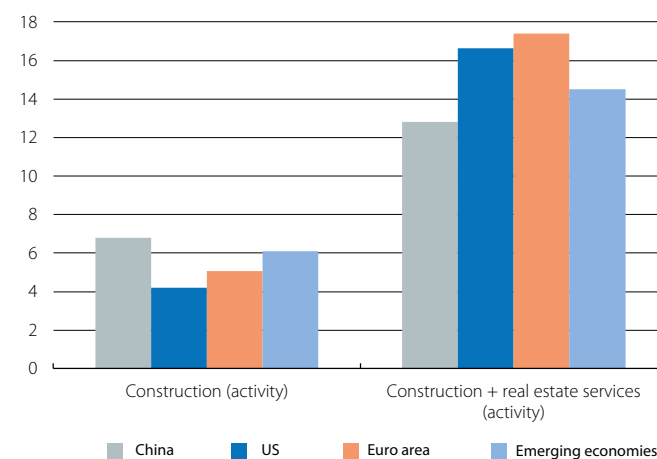
Note: * Price of the one-month future of the Dutch TTF benchmark gas price.
Source: CaixaBank Research, based on data from Refinitiv.

Euro area: negotiated wages Year-on-year change (%)



Source: CaixaBank Research, based on data from Refinitiv.

The construction sector: comparison of measures (% of GDP)



Source: CaixaBank Research, based on data from the OECD and Goldman Sachs.

China's real estate sector: size does matter

Imagine an economy which only produces a single house as a final product from three materials: roof tiles, bricks and steel (which are also produced domestically). This house was sold to the final buyer for 1,000 yuan and the materials cost the builder 800 yuan. How important is the construction sector in this economy? One could say that construction would account for 20% of GDP: by combining production inputs and building the house, the builder adds a value of 200 yuan to the economy. Another answer could be that construction accounts for 100% of GDP, once everything else produced is incorporated into the final product sold by the sector. After all, if the demand for housing fell, the demand for building materials would also fall.¹ What is the correct answer? Both.

However, it is important to know which measure is most appropriate for estimating the macroeconomic effects of a slowdown in the sector, especially in the case of China. Not in vain, China's real estate sector is often described as «the most important sector in the world» because of the importance it has amassed in recent decades in the Asian giant's growth model. The country's growing urbanisation, the development of the financial sector and the appetite of domestic and international investors, among other factors, have led to a real estate boom in recent years. To appease this boom, the country's government initiated a series of regulatory measures.² However, the combination of these restrictive measures with the high levels of debt of some of the major property developers (notably Evergrande, with some 300 billion dollars in debt) has heightened concerns over the risk in the sector. Even the Fed recently mentioned its potential to destabilise the global economy.

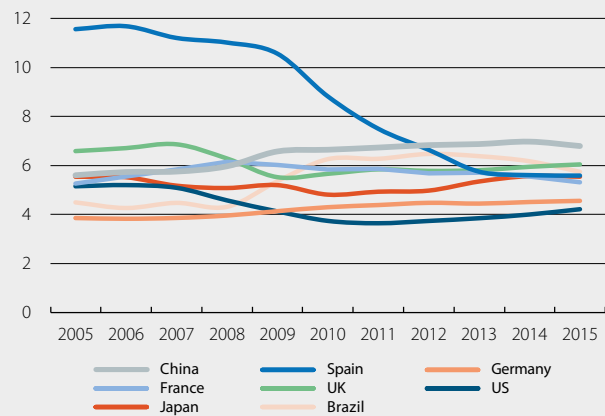
How important is the construction sector to the Chinese economy?

If we look at the activity of China's construction sector, we can see that its relative importance in the economy is considerable (7% of GDP), but it is not significantly greater than in some of the world's largest economies (see first chart). Notably, the sector's relative weight lies below what was observed in Spain in the 2000s, when the construction sector accounted for over 10% of GDP.

1. In addition, the production of these materials would have required raw materials such as clay or iron ore, which should also be taken into account in the final calculation of the various sectors' contributions.
2. Specifically, three liquidity criteria known as the «three red lines» have been defined. These include a 70% limit on the ratio of liabilities to assets, a 100% limit on the net leverage ratio, and a minimum coefficient of 1 in the liquidity ratio (relative to short-term debt). Depending on how many «red lines» they fail to meet, property developers face varying limits on the growth of their debt, potentially losing access to credit altogether.

Construction sector: measure of activity

Value added of the construction sector (as a % of total GVA)



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

China: the carry-over effect of the construction sector

(As a % of total GVA) *



Note: * Value added of each economic sector generated indirectly by the demand of the construction sector (carry-over effect).

Source: CaixaBank Research, based on data from the OECD and Goldman Sachs.

On the other hand, if we were to add real estate activities to this calculation, the sector's new relative weight would reach 13% of GDP in China, substantially below that observed in other countries (17% in Spain, the US and Japan; 18% in Germany, and 20% in the UK). This difference can be explained by the fact that China's real estate market is still in a development phase, where construction represents a larger proportion of the total.

Another way to calculate the sector's importance to the economy is by analysing what portion of final demand it accounts for. In other words, we must analyse both its direct contribution to the production of goods and services as well as its indirect effect due to the additional demand it generates in the economy through its connection to other sectors, known as carry-over effect.

Following this approach, besides the construction sector's direct relative weight in the final demand of the Chinese economy (7%), we must also factor in the additional demand which it generates in other sectors, such as in real estate services (0.4%), in trade and basic metals (2.0% in each sector), in financial activities (1.9 %) and in capital goods (0.9 %) (see second chart). Overall, the carry-over effect of the construction sector amounts to 17.5%. This implies that, in terms of final demand, we would arrive at an estimate for the importance of the real estate sector in the Chinese economy of around 24% of GDP.³

Performing a similar exercise for the direct and carry-over effects in other large countries, we find that China's 24% relative weight would be roughly similar to that of other emerging economies, and slightly above some Asian neighbours such as Japan and South Korea (both with 20%). On the other hand, it would significantly exceed the figure for other advanced economies, where the sector accounts for around 18% of GDP (see third chart).

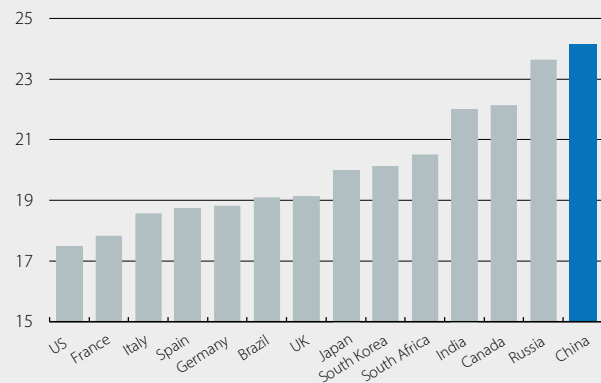
How big could the Evergrande effect get?

In the medium term, the decline in investment in construction was already expected and sought by the Chinese government as part of its long-term vision to promote «shared prosperity». This decline in the importance of the real estate sector is part of the change in tone (and speed) that we expected in the Chinese growth model. Despite this slowdown, it is also important to stress that real estate investment in China is expected to keep apace, given the growing trend of urbanisation and the rapid growth in citizens' per capita incomes.

The Chinese government will seek to gradually reduce the construction sector's «footprint» in the economy and avoid a hard landing in real estate. On the other hand, real estate services may gain prominence as the market reaches a more mature phase, and this will go hand in hand with the shift towards a greater role of the tertiary sector in the economy (as services gradually gain ground from agriculture or industry). Nevertheless, there are some risks that this soft landing could end up being somewhat bumpier. For example, a disorderly collapse

3. We can also compare these estimates, for example, with those of K.S. Rogoff and Y. Yiang (2020) «Peak China Housing», NBER Working Paper 27697. Following a similar approach, the authors estimated the sector's relative weight at 30% in 2014. In the same year, France and the United Kingdom shared second place, with 20%. The previous peak occurred in Spain in 2006, when the real estate sector accounted for 29% of the country's GDP. Other analysts, such as Goldman Sachs, point to a «broad measure» of China's real estate sector of between 18% and 30% of GDP. A more precise measure could be around 23% by excluding, for instance, infrastructure, which accounts for 7% of GDP. On the other hand, excluding real estate services (which are not fully included in our measure of final demand) would lead to an estimate of around 18% of GDP.

Construction sector: measure of final demand (% of GDP)



Source: CaixaBank Research, based on data from the OECD and Goldman Sachs.

of a large property developer could affect market confidence and lead to a «sudden halt» in the sector, similar to what occurred in 2014-2015 when residential investment and property prices fell sharply in a short period.

If we only considered its direct effects, a similarly large fall (of 20%) in real estate activity would cause GDP to drop by around 5%. If this slowdown were seen exclusively in the construction sector, excluding infrastructure, then the associated decline would amount to around 3% of GDP.

However, these estimates ignore the effects of financial contagion which could trigger a more uncontrolled real-estate crisis, and also they do not take into account fiscal or monetary policy measures aimed at limiting damage to the economy.

For the time being, despite the high uncertainty, the Chinese government seems intent on pursuing the long-term reforms it previously announced, and this increases the risk that the real estate sector could experience a significant adjustment. In this context, the potential risk of international contagion should be taken into consideration, and this could materialise both through a slowdown in the Chinese economy and through financial contagion caused by a sharper slowdown in the sector. This is a topic we will address in future articles of the *Monthly Report*. In the balancing act between pursuing the restructuring of the sector and ensuring the economic stability of the country in the short term, maintaining the confidence of buyers in the market will be key, as will be the need to isolate other sectors as much as possible from the aspired real estate adjustment.

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

UNITED STATES

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	09/21	10/21	11/21
Activity									
Real GDP	2.3	-3.4	-2.3	0.5	12.2	4.9	-	-	-
Retail sales (excluding cars and petrol)	4.0	2.1	4.7	11.9	26.2	13.7	13.2	14.9	16.5
Consumer confidence (value)	128.3	101.0	93.8	99.1	122.1	116.7	109.8	111.6	111.9
Industrial production	-0.8	-7.2	-4.3	-1.6	14.7	5.6	4.7	5.3	5.3
Manufacturing activity index (ISM) (value)	51.2	52.5	59.0	61.4	60.8	60.2	61.1	60.8	61.1
Housing starts (thousands)	1,295	1,396	1,575	1,599	1,588	1,562	1,550	1,502	1,679
Case-Shiller home price index (value)	217	228	239	249	262	274	277	...	...
Unemployment rate (% lab. force)	3.7	8.1	6.8	6.2	5.9	5.1	4.8	4.6	4.2
Employment-population ratio (% pop. > 16 years)	60.8	56.8	57.4	57.6	58.0	58.5	58.7	58.8	59.2
Trade balance ¹ (% GDP)	-2.7	-3.2	-3.2	-3.6	-3.6	-3.7	-3.7	-3.7	...
Prices									
Headline inflation	1.8	1.2	1.2	1.9	4.8	5.3	5.4	6.2	6.8
Core inflation	2.2	1.7	1.6	1.4	3.7	4.1	4.0	4.6	4.9

JAPAN

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	09/21	10/21	11/21
Activity									
Real GDP	-0.2	-4.5	-0.8	-1.8	7.3	1.1	-	-	-
Consumer confidence (value)	38.9	31.1	33.0	33.3	35.4	37.3	37.8	39.2	39.2
Industrial production	-2.7	-10.6	-4.2	-1.5	19.9	5.9	-2.3	-2.6	3.7
Business activity index (Tankan) (value)	6.0	-19.8	-10.0	5.0	14.0	18.0	-	-	-
Unemployment rate (% lab. force)	2.4	2.8	3.0	2.8	2.9	2.8	2.8	2.7	2.8
Trade balance ¹ (% GDP)	-0.3	0.1	0.1	0.2	0.7	0.4	0.4	0.2	-0.1
Prices									
Headline inflation	0.5	0.0	-0.9	-0.5	-0.7	-0.2	0.2	0.1	0.6
Core inflation	0.6	0.2	-0.4	0.0	-0.9	-0.5	-0.5	-0.7	-0.7

CHINA

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	09/21	10/21	11/21
Activity									
Real GDP	6.0	2.2	6.5	18.3	7.9	4.9	-	-	-
Retail sales	8.1	-2.9	4.6	34.0	14.1	5.1	4.4	4.9	3.9
Industrial production	5.8	3.4	7.1	24.6	9.0	4.9	3.1	3.5	3.8
PMI manufacturing (value)	49.7	49.9	51.8	51.3	51.0	50.0	49.6	49.2	50.1
Foreign sector									
Trade balance ^{1,2}	421	524	524	621	605	634	634	661	658
Exports	0.5	3.6	16.6	48.9	30.7	24.4	28.1	27.1	22.0
Imports	-2.7	-0.6	5.7	29.4	44.1	25.9	17.5	20.6	31.7
Prices									
Headline inflation	2.9	2.5	0.1	0.0	1.1	0.8	0.7	1.5	2.3
Official interest rate ³	4.2	3.9	3.9	3.9	3.9	3.9	3.9	3.9	3.9
Renminbi per dollar	6.9	6.9	6.6	6.5	6.5	6.5	6.5	6.4	6.4

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	Q4 2020	Q1 2021	Q2 2021	Q3 2021	09/21	10/21	11/21
Retail sales (year-on-year change)	2.4	-0.9	1.6	2.6	12.7	2.4	2.6	1.4	...
Industrial production (year-on-year change)	-1.3	-8.5	-1.4	3.6	23.6	5.9	5.1	3.3	...
Consumer confidence	-7.0	-14.3	-15.6	-13.7	-5.5	-4.6	-4.0	-4.8	-6.8
Economic sentiment	103.7	88.2	91.4	95.3	114.3	118.1	117.8	118.6	117.5
Manufacturing PMI	47.4	48.6	54.6	58.4	63.1	60.9	58.6	58.3	58.4
Services PMI	52.7	42.5	45.0	46.9	54.7	58.4	59.0	54.6	55.9
Labour market									
Employment (people) (year-on-year change)	1.3	-1.5	-1.8	-1.7	2.0	...	-	-	-
Unemployment rate (% labour force)	7.6	7.9	8.2	8.1	8.0	...	7.4	...	...
Germany (% labour force)	3.2	3.9	4.1	3.9	3.6	...	3.3	...	...
France (% labour force)	8.4	8.0	8.0	8.0	8.2	...	7.7	...	...
Italy (% labour force)	10.0	9.3	9.8	10.1	9.8	...	9.2	...	...
Real GDP (year-on-year change)	1.6	-6.5	-4.4	-1.1	14.4	3.9	-	-	-
Germany (year-on-year change)	1.1	-4.9	-2.9	-3.0	10.0	2.6	-	-	-
France (year-on-year change)	1.8	-8.0	-4.3	1.5	18.8	3.3	-	-	-
Italy (year-on-year change)	0.4	-9.0	-6.6	-0.6	17.1	3.9	-	-	-

Prices

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	09/21	10/21	11/21
General	1.2	0.3	-0.3	1.1	1.8	2.8	3.4	4.1	4.9
Core	1.0	0.7	0.2	1.2	0.9	1.4	1.9	2.1	2.6

Foreign sector

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	09/21	10/21	11/21
Current balance	2.4	2.1	2.1	2.8	3.0	3.0	2.9	2.8	...
Germany	7.4	7.0	7.0	7.1	7.6	7.4	7.1	9.1	...
France	-0.3	-1.9	-1.9	-1.8	-1.6	-1.3	-0.8	-0.8	...
Italy	3.2	3.4	3.4	3.4	3.8	3.6	3.8	2.4	...
Nominal effective exchange rate¹ (value)	92.3	93.8	95.5	95.3	94.9	94.0	93.9	93.8	92.9

Credit and deposits of non-financial sectors

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	09/21	10/21	11/21
Private sector financing									
Credit to non-financial firms ²	3.8	6.3	7.0	6.4	2.3	1.8	2.1	2.5	...
Credit to households ^{2,3}	3.4	3.2	3.1	3.1	3.9	4.1	4.1	4.1	...
Interest rate on loans to non-financial firms ⁴ (%)	1.2	1.2	1.3	1.1	1.2	1.3	1.3	1.2	...
Interest rate on loans to households for house purchases ⁵ (%)	1.5	1.4	1.4	1.3	1.3	1.3	1.3	1.3	...
Deposits									
On demand deposits	8.0	12.9	15.2	16.1	12.4	11.4	11.5	11.1	...
Other short-term deposits	0.3	0.6	1.4	1.0	-0.6	-2.0	-2.5	-1.6	...
Marketable instruments	-1.9	8.1	15.5	13.8	12.2	9.6	6.8	11.1	...
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.

2021, the year of recovery, 2022, the year of consolidation

The economy will accelerate its rate of growth in 2022.

COVID-19 still prevailed during the year 2021, with a highly significant increase in cases at the beginning of the year and a new lockdown. After that, the vaccination process advanced at a good pace, enabling us to reach the end of the year with almost 90% of the population fully vaccinated. In a context of fewer restrictions and given the success of vaccination, according to our forecasts, the GDP will have grown by 4.3% in 2021 as a whole, a strong recovery, but still insufficient to compensate for the historic fall seen in 2020 (-8.4%). However, the appearance of the new, more contagious Omicron variant, the energy crisis and the global supply chain issues have clouded the prospects for the end of the year and the beginning of 2022. Even so, we expect the economy to grow 4.9% this year, with the backing of tourism, European funds, and the channelling of the savings accumulated in the most restricted periods of confinement toward consumption. The pandemic, the risk of the prolongation of the energy crisis and the global supply chain issues will remain a source of uncertainty, but the general feeling is of confidence: the energy crisis and strangulation issues should be resolved in the second half of the year, and with the possibility of adapting existing vaccines to the new variants, this invites us to believe that there may only be occasional episodes of greater uncertainty, but not a sustained impact on economic activity.

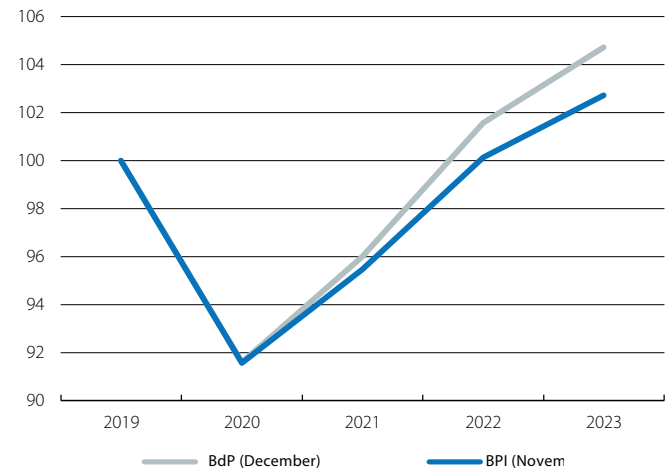
The latest indicators suggest a moderation in the recovery in 4Q 2021, with consumption continuing to be the main driver of this recovery. In November, card payments were 10.7% higher than in that period of 2019, and retail sales were 5.4% higher, despite the drop in fuel consumption. The export sector is also a good contributor to the recovery, with exports of goods up by 18% compared with 2019, as of November. Other indicators, such as industrial production and flights registered at Portuguese airports, show that the unfavourable gap compared to 2019 still remains, but is getting ever smaller. Thus, in November, industrial production remained 2.8% below that of November 2019, and the flights registered 13.6% fewer.

Labour market recovers faster than economic activity.

In October, preliminary data indicated a level of employment clearly above pre-pandemic values (a 1.1% increase, that is, 52,100 more jobs) while the unemployment rate remained unchanged at 6.4%. Likewise, in November, the unemployment registered in employment centres fell for the eighth consecutive month, -1.6% (-13.2% year-on-year); however, remaining above that of the pre-COVID period (+13%, +39,900 people). The year-on-year drop in unemployment is particularly marked in construction, commerce, real estate activities, administrative & support services and accommodation & catering (accounting for almost 60% of the year-on-year reduction in registered unemployment). But in this last sector, there is a considerable quarter-on-quarter increase, which can be explained by the fact that

Portugal: Banco de Portugal and BPI scenarios for growthw

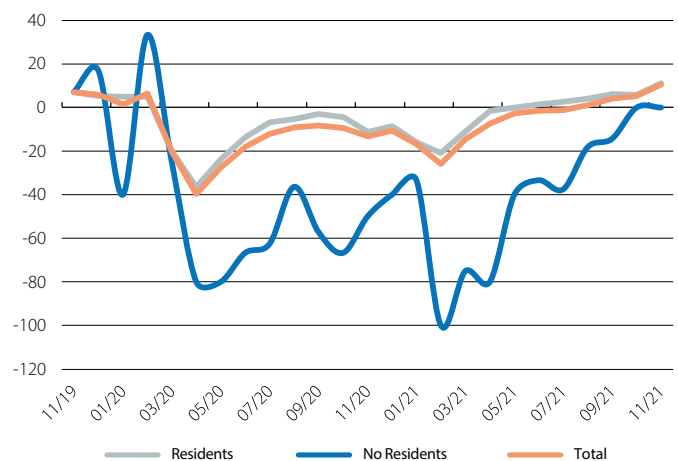
(2019 = 100)



Source: BPI Research, based on data from the Institute of National Statistics and BdP.

Portugal: evolution of card payments

Annual rate of change (%)*

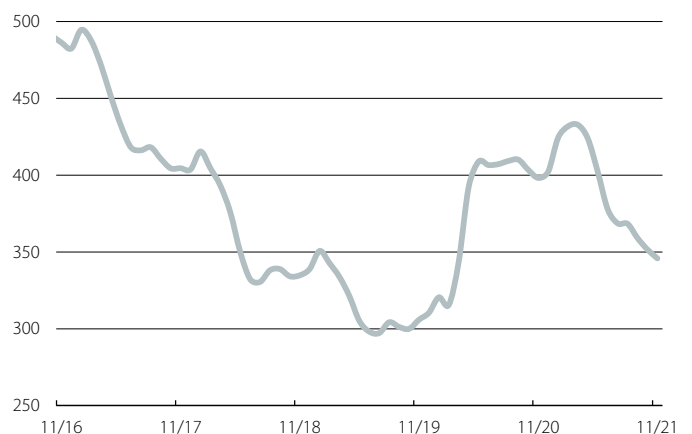


Note: * As from March 2021, the comparison is with 2019.

Source: BPI Research, based on data from SIBS Analytics.

Portugal: unemployment as recorded at employment centres

(Number of persons)



Source: BPI Research, based on data from the IEFP (Institute for Employment and Vocational Training).

October was the second best month of the year in terms of tourism (unlike previous years). Another positive sign comes from the number of unfilled job vacancies, which reach very high levels and, in some sectors, significantly exceed pre-pandemic levels.¹ Thus, our prospects remain positive, anticipating an unemployment rate of 6.4% in 2022.

The real estate sector remains asymptomatic. The COVID-19 pandemic appears to have no effect on the residential real estate market. Thus, in the 3Q, house prices accelerated by 9.9% year-on-year (+3.6% quarter-on-quarter), 3.3 pp more than in the previous quarter. Likewise, the number of transactions grew by 25.1% year-on-year (+9.3% quarter-on-quarter) and the average value transacted per home increased by almost 11% year-on-year, to a value of almost 166,000 euros. In both cases, the number of houses sold and their average value, the maximums of the series were recorded. The latest data continue to indicate the sector's resilience in Q4: data from Confidencial Imobiliário point to an 11.7% year-on-year increase in prices in November (10.6% in October). For 2022, we expect more moderate price increases.

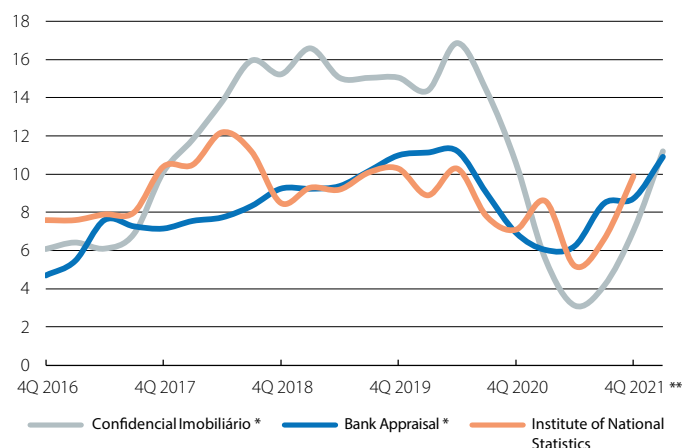
Inflation above 2% was slow in coming, but stayed. This was a dormant topic, but it gained weight throughout 2021 with rates above 2% in the eurozone since July (4.9% in November). In Portugal the phenomenon was later and more moderate. December was only the second consecutive month with inflation above 2% year-on-year in 2021, with the INS flash estimate indicating 2.8% (2.6% in November). Although the Transport sector has been the only one with year-on-year rates above 5% over several months, boosted by the increase in fuel prices, in December the big news was the sharp increase in the prices of unprocessed food products: +3.2% (0.8% in November). We expect the upward trend in the price of these goods, reflecting the cost of raw materials and energy, to continue above 2% during the first months of 2022.

The pandemic continues to leave marks on public finances. In fact, the General Government deficit stood at 3.4% from January to November, 1.4 pp lower than in the same period in 2020. The improvement in public finances was due to a substantial growth in revenue (8.6% year-on-year), which benefited from the increase in tax and contributory revenue (taking advantage of the improvement in economic activity and the lower impact of the COVID-based exemption and deferment of the payment of certain taxes), the receipt of European funds (+1,299 million euros), proceeds from the auction of 5G mobile networks and dividends from the CGD. In turn, expenditure increased by 5.0% year-on-year, with emphasis on the substantial increase in current transfers, personnel expenses, acquisition of goods & services, and investment. The impact of the pandemic is still very pronounced: in total, COVID measures reached the equivalent of 2.7% of the GDP until November (2.3% in the same period of 2020). Until November, the deficit compares poorly with the surplus recorded in the same period in 2019, with emphasis on the adverse comparison of current transfers, largely explained by the COVID measures.

1. For more details on the analysis, see the Focus «Why aren't there enough workers in Portugal?», in this IM.

Portugal: Property prices

Year-on-year change (%)

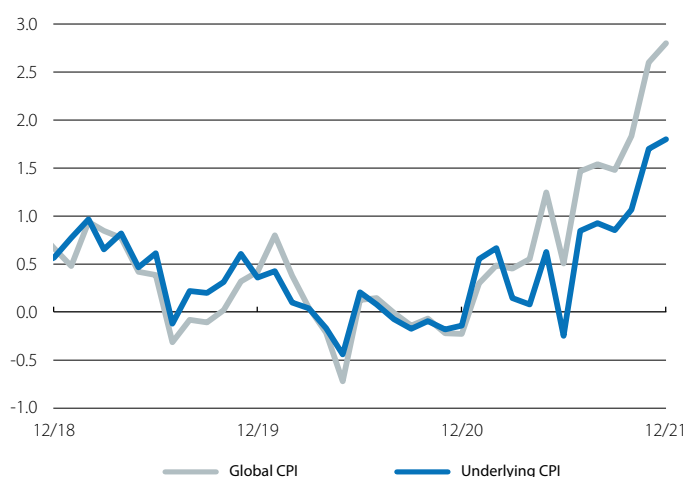


Note: * Average year-on-year rate of change in each quarter. For 4Q 2021, the Oct-Nov average is shown. Compared to the same period.

Source: BPI Research, based on data from the Institute of National Statistics and Confidencial Imobiliário.

Portugal: CPI

Year-on-year change (%)



Source: BPI Research based on data from Institute of National Statistics.

Portugal: budgetary execution (January-November)

	2019 (%)	2020 (%)	2021 (%)	Var. 2021 vs. 2019 (%)	Var. 2021 vs. 2020 (%)
Revenue	40.5	40.6	41.9	1.4	1.3
Tax revenue	23.6	23.4	23.4	-0.2	0.0
Social Security contributions	10.1	10.8	11.1	0.9	0.2
Expenditure	40.2	45.4	45.3	5.1	-0.1
Personnel expenses	10.0	11.1	11.1	1.1	-0.1
Current Transfers	17.3	20.1	19.9	2.7	-0.2
Acquisition of Goods and Services	5.6	6.1	6.1	0.5	0.0
Interest	3.9	4.0	3.5	-0.5	-0.5
Investment	1.9	2.3	2.6	0.7	0.4
Budgetary Balance	0.3	-4.8	-3.4	-3.7	1.4

Source: BPI Research, based on data from the Directorate-General for Budget and the National Institute for Statistics.

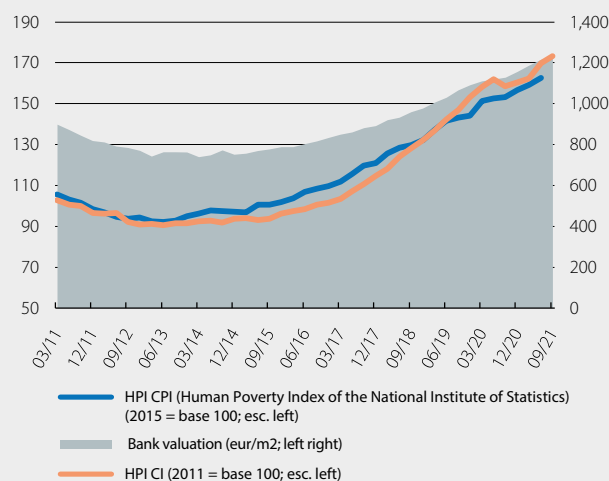
House prices in Portugal: solid foundations or castles made of sand?

Contrary to what occurred in other sectors of activity, some with 70% drops in turnover, when we look at the housing market we see that the pandemic crisis has passed it by. In 4Q 2020, the number of real estate transactions exceeded the same period in 2019, and in the first half of 2021 transactions exceed those that took place in the same period of 2019 and 2020. Moreover, house prices have maintained their upward trend since 2015, reflected both in the consumer price index and in that prepared by Confidencial Imobiliário. This price movement is also confirmed by the median value per square meter of bank assessments in the context of housing credit processes, which in October 2021 reached the highest value in the series and 17% above October 2019. At present when all curves (transactions, price and value) point upwards, we need to question whether this growth is sustainable. Are the foundations on which these valuations are based solid?

It would be reasonable to expect that a rise in property prices would serve as an incentive to increase supply and intensify investment in residential building construction. Such a move could lead to an oversupply of properties. However, given the long operating cycle of the construction industry, this excess supply is not created in one or two years, so it is important to take a long-term perspective while looking at the current numbers. Analysts suggest measuring the difference between the current residential GFCF¹ value (as a percentage of GDP) against the average of the last 20 years in order to assess the existence of excess property supply (housing overhang).² We have accumulated the difference of the years 2015 (the year in which the HPI gained upward momentum) to 2020, between the annual value of this investment and the historical average of the last 20 years ending in 2014 (5.5% of GDP). This calculation results in an accumulated negative value of -16.9%, suggesting that an excess of residential property supply has not been generated in recent years, on the contrary.

Another approach to assessing whether the current pace of housing construction is sustainable in the long term is to analyse the number of homes built compared to the number of households. If we assume a 2% home depreciation rate (implicitly meaning that a home has a 50-year lifespan), a construction rate of 20 homes per 1,000 households maintains a constant level of housing stock per household. Taking a more conservative

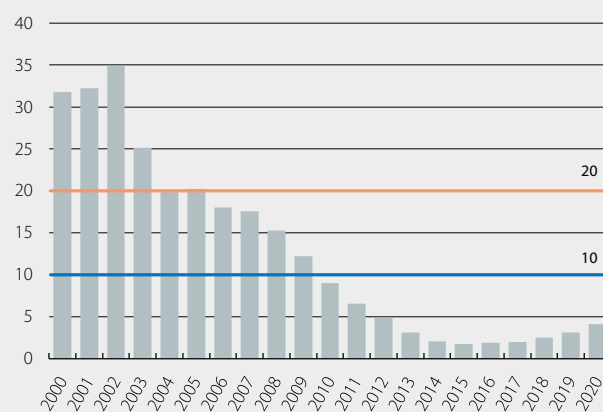
HPI and Bank valuation



Source: BPI Research, based on data from the Institute of National Statistics and Confidencial Imobiliário.

Construction rate

Number of new dwellings per 1,000 households



Source: BPI Research based on data from the NIS and Pordata.

approach and considering a 1% housing depreciation, it is a construction rate of 10 houses per 1,000 households that maintains a constant level of the housing stock.³ In the Portuguese case we find that the construction rate is lower than the values we assume as reference: below 20 since 2006 and below 10 since 2010.

These data indicate that at present there will not be a problem on the supply side contributing to downward pressure on housing prices. The percentage of new homes in the *mix* of properties sold, which has been

1. Gross Fixed Capital Formation.

2. See the article Gros, D., 2007, "Bubbles in Real Estate? A longer-term comparative analysis of housing prices in Europe and the US", CEPS Working Document, No. 276 / October 2007.

3. The Construction Rate indicator can be adjusted taking into account, for example, the annual population growth rate. As the annual population growth rates in Portugal over the last decade have been negligible/null, it was decided not to make any adjustment.

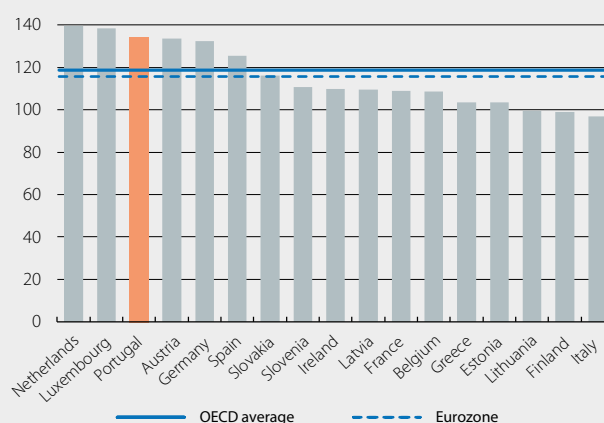
decreasing from values over 30% up until 2011 to values in the order of 15% today, seems to confirm this idea.

The scenario is not so encouraging when we look at demand, namely from the perspective of household income. The OECD defines an indicator⁴ that relates housing prices to disposable income per inhabitant and which can be considered as a measure for assessing whether housing prices are affordable for the population. With the latest available data (2Q 2021), Portugal's ratio (= 134) compares poorly with other Eurozone countries, being the third from the bottom, as well as with the OECD average (= 118.7). This poor performance may also reflect the greater difference between the average income in Portugal compared to other countries.

If, in the house price-to-income ratio, we consider the difference between the current value and the historical average as an indicator of overvaluation, we find that the current indicator exceeds this average by 12%. This indicator has shown strong growth since 2015 (= 100), meaning that houses are becoming progressively less affordable in relation to the population's income. In fact, between 2015 and 2020 the average growth of the HPI was around 9% per year, while families' average disposable income grew at a rate of only 3% per year. Put another way: in 2015, the average value of homes sold in the Lisbon Metropolitan Area was the equivalent of five and a half years of a family's average income in Portugal and in 2020 this value rises to six and a half years. The low interest rate environment moderates this pressure on demand: mortgages get cheaper. Houses also become an attractive investment compared to deposits. As well as stimulating the demand side in Portugal, and which is not considered in the OECD indicator, acquisitions by non-residents represent 13% of properties sold in 2019, and the average acquisition price is 70% higher than properties acquired by residents.

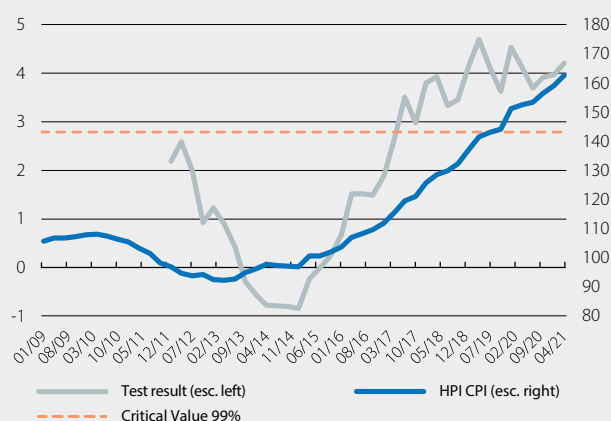
Are we facing a speculative bubble? The changes in house prices or any asset can be explained by market fundamentals, but also by the existence of speculative bubbles: periods of strong price increase, followed by strong correction. In property, these occur when house prices are expected to increase, which drives market participants to «excessive activity» seeking future gains due to the fact that house prices are above the «fair value». This behaviour leads to an explosive increase in prices that temporarily dominates the dynamics of the time series. To clarify this possibility, we applied an econometric methodology⁵ to the HPI allowing us to

House Price-to-Income in 2Q 2021
(As a % of incomes)



Source: BPI Research based on data from OECD.

GSADF applied to HPI of the CPI



Source: BPI Research based on data from the National Institute of Statistics.

detect and demarcate periods that may be associated with episodes of bubble in the series. The result of this statistical test is shown in the illustration: there is a suggestion that the period following 3Q 2017 may indicate the formation of price exuberance in the Portuguese housing market. Only reversing the cycle of low interest rates, which increasingly appears to be a less distant reality, can confirm whether or not there is a decrease in demand, especially the appetite for real estate as an investment.

4. House price-to-income ratio.

5. Generalized Supreme Augmented Dickey-Fuller (GSADF). See the article by Phillips, PCB, Shi, S, and Yu, J. (2015). "Testing for multiple bubbles: Historical episodes of exuberance and collapse in the S&P 500". International Economic Review, 56(4):1043-1078.

Why is there a shortage of workers in Portugal?

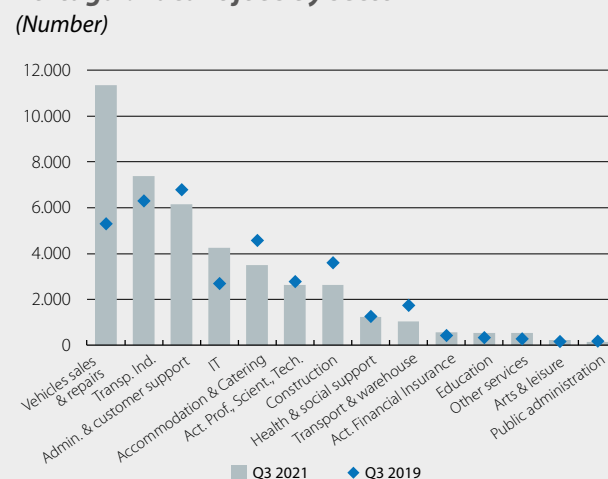
Even though indicators point to a robust recovery of economic activity over the coming quarters, some factors may limit the speed of the economy's recovery. Among them, there are disruptions to the global supply chain, due to transport problems and scarcity of some components, and the energy crisis, with the increase in electricity prices and the consequent increase in production costs.¹ Another factor, which has received less attention, but which may also limit the speed of recovery of economic activity, is the mismatch between demand and supply that has been deepening in the labour market. More specifically, unfilled job vacancies have been growing consistently since the end of 2020, surpassing 42,800 in Q3 2021, the highest level in the series. This increase contrasts with the changes in economic activity, which, despite having recovered significantly in the first three quarters of the year, remained 2.4% below the same period in 2019, and is also not explained by the lower participation in the labour market, since the participation rate is at the highest level since late 2010. Likewise, companies in manufacturing and construction have been signalling that the lack of workers is a limitation on their activity.² The number of vacancies to be filled increased year-on-year in all sectors of activity in the 3Q. However, compared to the pre-pandemic period, that is, 3Q 2019, the recovery is uneven across sectors of activity. Among the various sectors for which data are available, the sector of vehicle sales and repairs is prominent: in the 3Q, there were more than 11,300 jobs to be filled (almost 30% of the total vacancies), the quarter with the highest value in the series and more than double that recorded in the 3Q 2019. Similarly, the manufacturing industry and the IT sector not only recorded very positive year-on-year growth (+91.8% and 64%, respectively), but also exceeded pre-pandemic levels. Conversely, sectors such as transport & warehousing and accommodation & catering continue to be lower than in the pre-pandemic period (-40.7% and -23.5%, respectively), although in both the recovery is taking place at a significant pace, with the year-on-year change reaching 14.6% and 147.5%, respectively. The case of accommodation & catering is even more interesting, because if we exclude data from 2019, the highest in the series and which can be justified by the success of tourism that year, the value recorded in 3Q 2021 is the highest in the series, despite tourism activity having dropped below 2019 levels.³ There are several factors that may explain this behaviour. One of them is

Portugal: vacant jobs vs GDP



Source: BPI Research based on data from Statistics Portugal and Eurostat.

Portugal: vacant jobs by sector



Source: BPI Research based on data from Eurostat.

associated with the mismatch in the labour market resulting from a growing disconnection between the training and qualifications of candidates, which may explain the increase in unfilled job vacancies in sectors such as IT. The scarcity of resources in this area is particularly worrying: COVID-19 has contributed to an incredible rise in remote work and digital development, which has increased the demand for this type of professional. At the same time, foreign companies have been recruiting qualified personnel in this area within Portugal, taking advantage of the use of remote working and aggravating its shortage. However, this problem is not only identified in Portugal: in 2019, almost 60% of European companies seeking IT specialists had difficulty filling existing job vacancies and 13.5 million vacant jobs

1. For more information, see "Portugal in 2022, the year of complete recovery?", in IM12/2021.

2. See Bank of Portugal (2021). "Economic Bulletin: December".

3. The number of guests in tourist accommodation establishments in 3Q 2021 was 31.2% lower than in 3Q 2019.

in 2018 and 2019 represented jobs in this sector.⁴ In Portugal, software and application developers, and analysts stand out.

Another reason could be the impact of the pandemic on immigration flows. In fact, the vast majority of foreigners in Portugal occupy the most precarious and demanding jobs, especially in sectors such as accommodation & catering, administrative activities & customer support and sales. The number of permanent immigrants had been increasing since 2015, but in 2020 it suffered a substantial drop (–7.7%, equivalent to 5,565 fewer immigrants), in line with the return to countries of origin⁵ and restrictions on mobility imposed to mitigate the spread of COVID-19. Furthermore, the foreign active population also fell in 2020 (–3.5%), contradicting the upward trend that began in 2018. However, and bearing in mind that this factor will be temporary, the return to normal activity should once again boost these migratory flows, mitigating the rise in unfilled jobs in sectors such as accommodation & catering, administrative activities & customer support, sales and even in construction.

Finally, fears of contagion from the pandemic are still relevant, having significantly more impact on the sectors that require more direct contact with people, such as accommodation & catering and social support activities. It is therefore possible that some people previously employed in these sectors, faced with the health risk and the high uncertainty with regards the implementation of measures to contain the pandemic, have sought employment in other sectors of activity. Additionally, we cannot rule out the possible impact of changes in consumption patterns on the demand for certain types of professionals: for example, the proliferation of electronic commerce will have contributed very positively to the demand and employment of professionals in the transport sector.⁶ Over the coming years, with the process of economic transformation and modernisation, a rise in the demand for workers with certain qualifications, especially in STEM areas,⁷ such as data analysts, big data specialists or climate and environmental specialists. Furthermore, implementation of the RRP in such a short period of time could increase the shortage of human resources, namely in the construction sector. At the same

time, it will be important to re-skill workers who currently perform more routine tasks, as some of this work will be automated in the future. In fact, it is estimated that around 40% of the workforce that existed in Europe in 2018 will need to acquire new skills in the future, because more than 20% of the tasks they perform today could be replaced by technology. This situation will mainly impact people with lower wages and low qualifications.⁸ Therefore, it is possible that the mismatch between demand and supply in the labour market will worsen in the absence of policies to encourage the reversal of this trajectory. The employability of workers should be improved by adapting the range of academic and technical training to market needs or the creation of public programmes to improve the qualifications or retraining of workers,⁹ such as the Upskill Program (for retraining professionals in programming areas) or the Employment + Digital (for retraining employed people). At the same time, it is important that companies also play an active role, creating the conditions and providing their employees with ways to retrain their skills. It is also important to implement incentive measures for immigrants, not only to mitigate the labour shortage, but also to compensate for the ageing of the Portuguese population and to diversify knowledge.

4. See European Commission (2021). “Joint Employment Report 2021”.

5. According to the ECB, there is evidence that foreign workers will have returned to their countries when COVID-19 appeared. For more information, see ECB (2021). “Labour supply developments in the euro area during the COVID-19 pandemic”. Economic Report 7/2021.

6. Similar to what happened in the US. See McKinsey & Company (2020). “Navigating the labor mismatch in US logistics and supply chains”.

7. Acronym for Science, Technology, Engineering and Mathematics. A net job creation potential between 2018 and 2030 is estimated at 25% in Europe in this area. For more information, see McKinsey Global Institute (2020). «The future of work in Europe».

8. See source for note 7.

9. See OECD (2021). «ECD Economic Surveys: Portugal 2021».

Activity and employment indicators

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
Coincident economic activity index	0.9	-5.4	-5.0	-2.5	1.7	3.8	3.7	3.6	...
Industry									
Industrial production index	-2.2	-6.9	-2.1	-0.8	25.0	-4.7	-6.3	0.2	...
Confidence indicator in industry (<i>value</i>)	-3.2	-15.8	-14.7	-13.6	-5.0	-1.5	-3.4	-2.7	-2.1
Construction									
Building permits - new housing (number of homes)	15.4	0.7	12.8	47.9	-28.9	-2.5	-23.9	...	...
House sales	1.7	-5.7	1.0	0.5	58.3	25.1	-	-	-
House prices (<i>euro / m² - valuation</i>)	10.4	8.3	6.0	6.2	8.5	8.7	10.6	11.2	...
Services									
Foreign tourists (<i>cumulative over 12 months</i>)	7.8	-76.2	-76.2	-86.7	-74.2	-38.7	-9.8	21.2	...
Confidence indicator in services (<i>value</i>)	12.9	-21.6	-19.5	-19.1	-9.9	5.5	9.8	11.8	14.0
Consumption									
Retail sales	4.4	-3.0	-1.9	-7.5	16.0	2.8	3.2	10.0	...
Coincident indicator for private consumption	2.2	-6.1	-5.5	-1.0	4.3	6.8	6.5	6.0	...
Consumer confidence index (<i>value</i>)	-8.0	-22.4	-26.2	-24.4	-17.3	-13.6	-10.9	-13.3	-16.4
Labour market									
Employment	1.2	-1.9	-1.2	-1.3	4.5	4.7	2.9	...	...
Unemployment rate (% <i>labour force</i>)	6.6	7.0	7.3	7.1	6.7	6.1	6.4	...	...
GDP	2.7	-8.4	-6.8	-5.7	16.1	4.2	-	-	-

Prices

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
General	0.3	0.0	-0.2	0.4	0.8	1.5	1.8	2.6	2.8
Core	0.5	0.0	-0.1	0.5	0.2	0.9	1.1	1.7	1.8

Foreign sector

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
Trade of goods									
Exports (<i>year-on-year change, cumulative over 12 months</i>)	3.6	-10.3	-10.3	-8.0	9.5	13.4	14.0	...	...
Imports (<i>year-on-year change, cumulative over 12 months</i>)	6.0	-14.8	-14.8	-15.7	1.8	10.2	13.1	...	...
Current balance	0.9	-2.2	-2.2	-2.1	-1.5	-1.9	-2.1	...	...
Goods and services	1.7	-3.6	-3.6	-3.5	-3.8	-4.2	-4.6	...	...
Primary and secondary income	-0.7	1.3	1.3	1.4	2.3	2.3	2.5	...	...
Net lending (+) / borrowing (-) capacity	2.8	0.0	0.0	0.1	0.5	1.2	1.1	...	...

Credit and deposits in non-financial sectors

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
Deposits¹									
Household and company deposits	5.2	10.1	10.1	10.6	8.7	8.7	8.5	9.2	...
Sight and savings	14.8	18.8	18.8	18.5	15.3	15.5	15.1	16.7	...
Term and notice	-2.9	1.4	1.4	2.4	1.3	1.0	1.0	0.7	...
General government deposits	5.6	-21.0	-21.0	-23.6	-15.0	-5.2	-5.3	-7.9	...
TOTAL	5.2	9.0	9.0	9.4	7.8	8.2	8.1	8.7	...
Outstanding balance of credit¹									...
Private sector	-0.1	4.6	4.6	5.1	4.4	4.2	4.2	4.1	...
Non-financial firms	-3.7	10.5	10.5	11.0	7.2	5.8	5.6	5.5	...
Households - housing	-1.3	2.1	2.1	2.7	2.6	3.3	3.3	3.2	...
Households - other purposes	15.4	-1.1	-1.1	-1.0	3.2	3.2	3.6	3.4	...
General government	-4.7	-4.2	-4.2	-5.1	4.5	4.1	4.8	4.4	...
TOTAL	-0.3	4.2	4.2	4.7	4.4	4.2	4.2	4.1	...
NPL ratio (%)²	6.2	4.9	4.9	4.6	4.3	4.0	-	-	-

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.

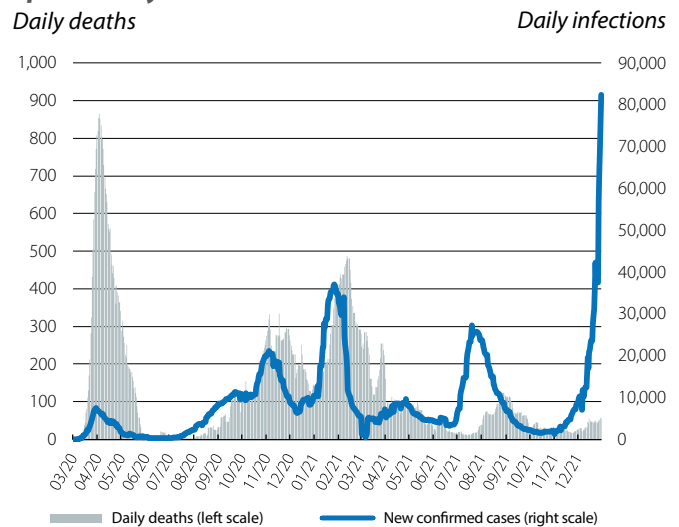
2022, the year to underpin the recovery of the Spanish economy

2021, an intense but incomplete recovery. Following the unprecedented collapse of the economy in the previous year triggered by the COVID-19 crisis, in 2021 we also witnessed a historic recovery in GDP. Thanks to the widespread roll-out of the vaccinations which facilitated the lifting of restrictions, coupled with the support provided by economic policies, according to our estimates GDP grew in 2021 by 4.8%, the highest rate since the year 2000. However, this growth rate falls short of what was expected at the beginning of the year, and at the end of the year GDP will still have been 4.6% below the last quarter of 2019. The incomplete recovery in international tourist flows and household consumption, despite the high volume of savings accumulated during the lockdowns, has hampered the recovery of the Spanish economy compared to the other large euro area economies. That said, where the gap generated by the outbreak of the pandemic has been closed is in the labour market, which has experienced a faster and more intense recovery than economic activity. This allowed the country to reach pre-pandemic levels in terms of effective employment (i.e. not counting workers on furlough) as early as July last year. The year closed with a record number of people registered with Social Security, at 19,825 million, representing 776,478 more than in December 2020 and 416,373 more than at the end of 2019. In addition, the number of workers on furlough at 31 December fell to 122,672, which is 580,136 less than a year earlier.

Omicron tarnishes the beginning of 2022. The sixth wave, with the emergence of the more contagious Omicron variant, has triggered a surge in the cumulative incidence rate, generating uncertainty and leading to the reintroduction of some restrictions. However, although the cumulative incidence exceeded 2,000 infections per 100,000 inhabitants in the first few days of the year, thanks to the high vaccination rates (the roll-out of the booster dose has begun) the epidemiological situation has remained more controlled than in previous waves, in terms of both pressure on hospitals and mortality. In this context, the latest indicators appear to suggest a somewhat less buoyant economic activity. In particular, the PMIs registered a slowdown in December, although they remain in expansionary territory (above 50). The PMI for industry fell to 56.2, its lowest in 10 months and down from 57.1 in November, as a result of the supply-chain problems and a moderation in new orders. The services PMI, meanwhile, stood at 55.8 compared to 59.8 the previous month, reflecting the impact of the Omicron variant on the sector's activity. This impact was particularly felt among catering and leisure companies, which registered booking cancellations.

Inflation ended 2021 at a three-decade high. In December, inflation was once again higher than expected, rising to 6.7% (5.5% in November), the highest year-end figure since 1989.

Spain: daily infections and deaths

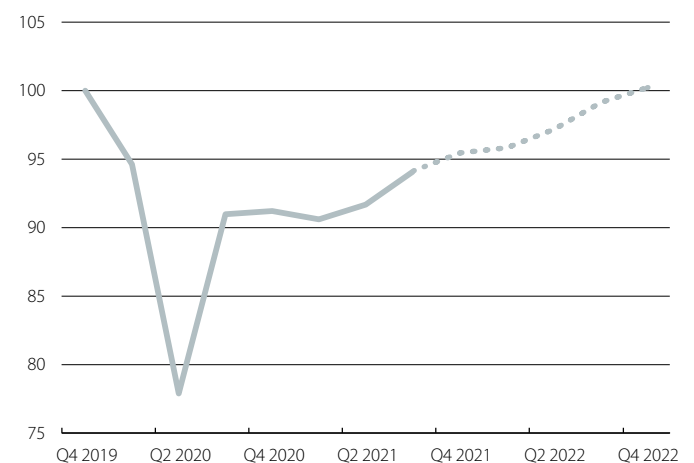


Note: 7-day averages for infections and deaths. Data by notification date.

Source: CaixaBank Research, based on data from the Ministry of Health.

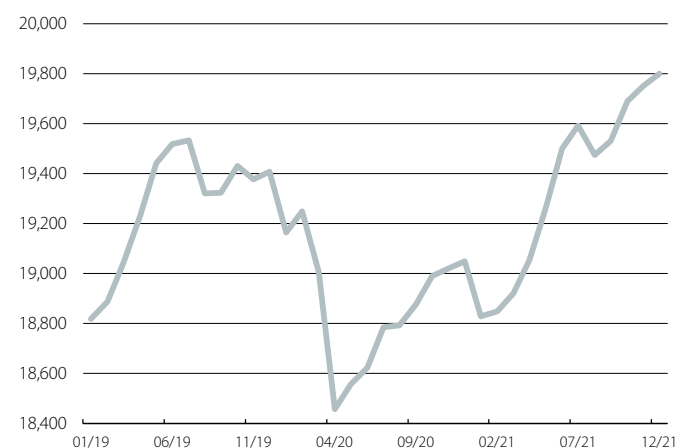
Spain: GDP

Level (100 = Q4 2019)



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

Spain: registered workers affiliated with Social Security (Thousands)



Note: Average monthly figures, not seasonally adjusted.

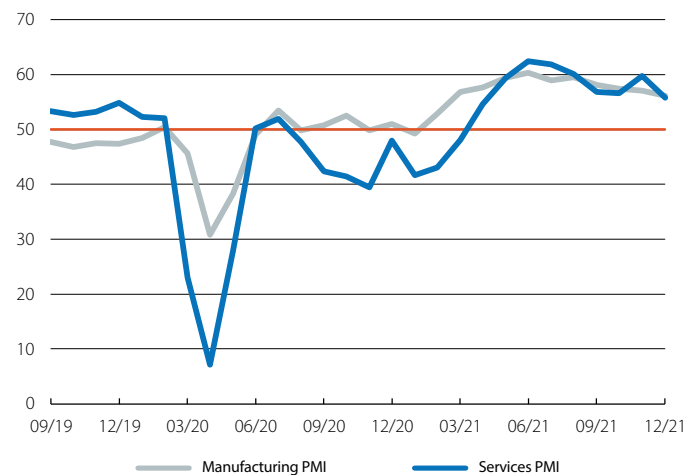
Source: CaixaBank Research, based on data from the Ministry of Social Security.

Core inflation, meanwhile, reached as high as 2.1% (1.7% in November): we need to go back to 2012 to find such a high core rate in December. The main cause of this escalation has been the energy component, particularly the high electricity prices. That said, base effects have also played a part, as the current prices are being compared to a year that saw a sharp drop in energy prices, as have the bottlenecks generated by the surge in demand. Although inflation will still remain high over the coming months, we expect to see a moderation in the second half of the year. While some of the rise in energy prices could be transmitted to the prices of industrial goods and services, which have also been affected by the bottlenecks, we do not expect the second-round effects to be severe enough to cause persistently high inflation in the medium term (for now, wage increases remain moderate due to the multi-year nature of collective labour bargaining agreements and the reduced impact of safeguard clauses). Following on from this, 10-year inflation expectations for Spain remain anchored at around the 2% mark. With the caution demanded by the current context, which is marked by high uncertainty, we expect headline inflation to remain above 5% until mid-year, before experiencing a significant correction as the comparative period becomes the latter part of 2021, when the surge in prices began. Thus, the annual average in 2022 is likely to be around 4.5%. On the other hand, we expect core inflation to continue to rise to over 3% by mid-year, with an average rate of 2.6% for the year as a whole.

The surge in revenues favours the correction of the budget deficit. The budget deficit stands at 3.9% of GDP in the cumulative period of the first 10 months of 2021 (consolidated general government deficit, excluding local corporations). This represents a substantial improvement compared to the 2020 level (deficit of 7.2%), but still far short of the level registered in 2019 (deficit of 1.3%). Consolidated expenditure is growing at a rate of 2.5% year-on-year (and 13.9% compared to January-October 2019), while revenues are registering a significant rebound (12.6% year-on-year and 6.2% compared to the same period of 2019) thanks to strong tax collections. Clearly, the pandemic continues to have a high impact on the public accounts, but less so than in 2020.

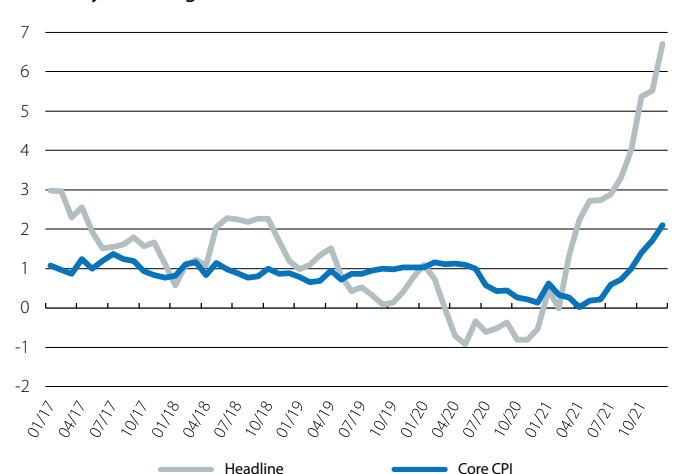
The pattern of growth will be consolidated in 2022. While the epidemiological situation remains one of the main determining factors for the 2022 outlook, we can expect the impact of the pandemic on economic activity to gradually decrease, allowing for a steady acceleration in activity. Specifically, we anticipate GDP growth of 5.5% for the year as a whole, thanks to the greater control of the pandemic, a recovery in household spending driven by the pent-up savings that were accumulated during the lockdowns, the recovery in tourism and an acceleration in the execution of NGEU funds, all in a context in which the financial conditions will remain favourable. Although economic activity will remain somewhat weak in the early stages of the year, still conditioned by the rise in energy prices and the bottlenecks, we believe that these factors will begin to gradually fade from Q2 2022.

Spain: economic activity indicators, PMI



Source: CaixaBank Research, based on data from Markit.

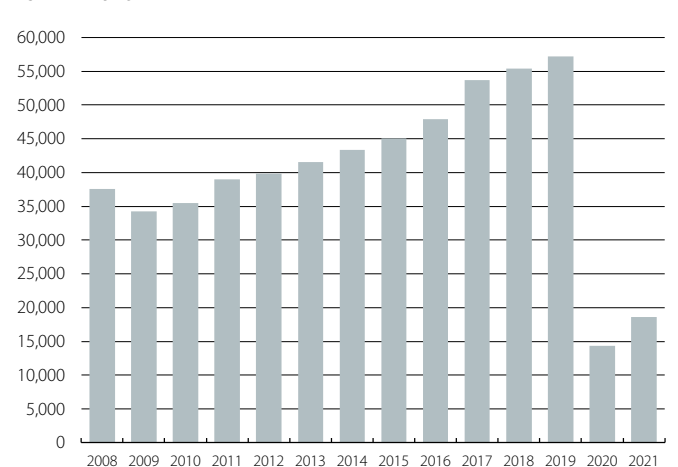
Spain: CPI



Note: The latest data point refers to the flash indicator.

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

Spain: tourism revenues



Note: Cumulative figures for January to September.

Source: CaixaBank Research, based on data from the Bank of Spain (balance of payments).

The growth of housing demand, one of the most positive surprises of 2021

In a context of gradual recovery of the Spanish economy during 2021, the trend in the real estate market has been very encouraging, especially on the demand side. Up to October there were 468,000 sales, up 36% compared to 2020 and 8.3% compared to 2019, and the level of activity is on course to have reached 545,000 sales by the end of 2021, the highest figure since 2008. Among the autonomous community regions, there are only three that did not recover their pre-pandemic activity levels in 2021 (up to when there is available data): the Basque Country, which has been badly affected by the health crisis, and the Canary Islands and Balearic Islands, which are the most dependent on international tourists.

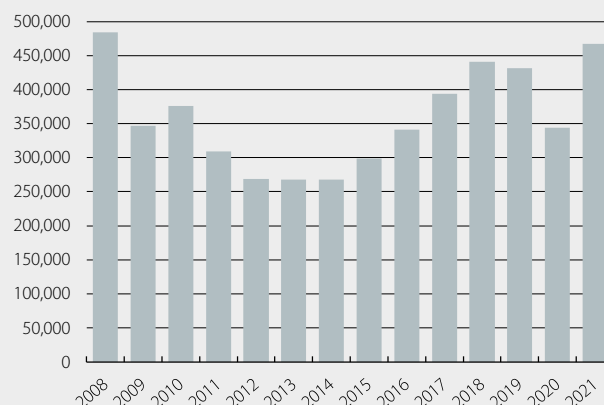
Much of this revival is driven by the materialisation of the pent-up demand and «forced» savings that were accumulated during the lockdowns and while the strict mobility restrictions were in force, as the combination of these factors and the favourable financing conditions have made buying and investing in real estate more appealing. However, as time passes by, some of the aspects that have characterised the post-lockdown demand are beginning to fade: (i) the revival of demand is not only being driven by new housing, but also by existing housing, which is gaining momentum and already exceeds pre-COVID levels; (ii) the preference for living outside major cities or provincial capitals has been moderating; (iii) the size of the homes being bought appears to have stagnated in Q1 2021, having increased markedly in 2020; (iv) the portion of sales relating to detached houses peaked at the end of 2020, and (v) the demand among foreigners is gradually picking up, especially since the summer, following the easing of mobility restrictions and the arrival of non-residents.

In 2022, the main factors influencing residential demand will continue to support activity

Despite the new wave of infections, the outlook for the year as a whole is favourable and we expect the labour market to maintain a good rate of job creation; household disposable income is showing clear signs of recovery and much of the pent-up savings accumulated at the height of the pandemic are also being spent on housing investment; household formation is recovering following the decline it suffered during the months of lockdown; foreign demand for housing will hopefully continue to recover, and financing conditions will remain favourable. Despite all this, the intense growth rate of 2021 does not seem sustainable, and certain temporary factors that have boosted demand in 2021 will fade in 2022. Thus, we expect that sales will moderate to levels

Spain: home sales

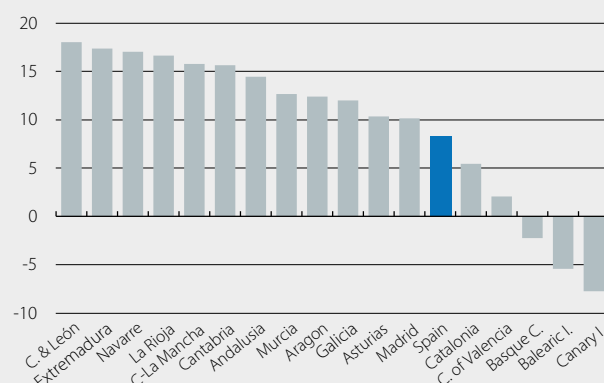
Number of homes. Cumulative figure from January to October



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

Spain: home sales by autonomous community region

Cumulative change: January-October 2021 vs. January-October 2019 (%)



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

similar to those of 2018-2019, slightly above 500,000 transactions per year.

Supply is recovering, but could be hampered by supply shortages

The steady rate of construction completion certificates seen in 2020 continues: in the first nine months of 2021, some 68,600 homes were completed, up 13% compared to 2020 and 26% versus 2019. However, these figures do not reflect the current status of the supply of new housing, as in many cases they refer to developments which were begun prior to the pandemic. Planning permissions for new housing, meanwhile, are up 26% year-on-year to September, but are still 4% below 2019 levels.

In any event, if the current pace is maintained, some 105,000 such permits will have been issued in 2021 as a whole, very much in line with 2018 and 2019. Moreover, the medium- and long-term outlook for new housing production remains positive, given the strength of the factors driving demand and the arrival of the European NGEU recovery funds, which will act as a catalyst by being allocated to renovations and boosting the supply of rental housing. On the other hand, rising commodity prices and supply chain problems could hamper the housing supply. According to data from Eurostat, the sector's costs are growing at a rate of over 12% per year as of September (all-time peak), while the prices of certain supplies are growing by over 16%.

Housing prices are beginning to climb

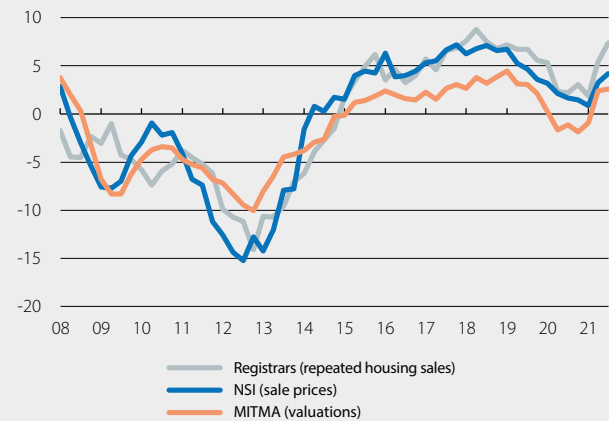
The widespread rise in demand and the property development sector's reduced capacity to respond are driving up prices, especially in the new housing segment. Since the year-on-year rates reached their low point between Q4 2020 and Q1 2021 (depending on the indicator), prices have followed an upward trajectory throughout 2021, rising by between 3.3 pps (National Statistics Institute's price index) and 5.5 pps (Association of Property Registrars' price index) up to Q3 2021. Thus, prices are 6.6% above pre-pandemic levels, albeit still 12% below the 2007 peak (according to the NSI price index). This trend is observed in all autonomous community regions, albeit to different extents, and not all regions have yet surpassed pre-pandemic levels (Navarre, Aragon and Castile and León, among others).

In the short term, the greater pull from demand compared to supply, the rise in construction costs (an effect which is proving more persistent than initially expected), as well as simply the inertia of housing prices all suggest that they will continue to climb.

In the medium and long term, given the absence of imbalances in the main factors which determine demand and supply, we do not expect prices to enter a worrying upward spiral; rather, their growth will probably be more in line with changes in household income, particularly once the «champagne effect» of demand has been diluted, supply has recovered more significantly and commodity prices have moderated.

Spain: housing price indices

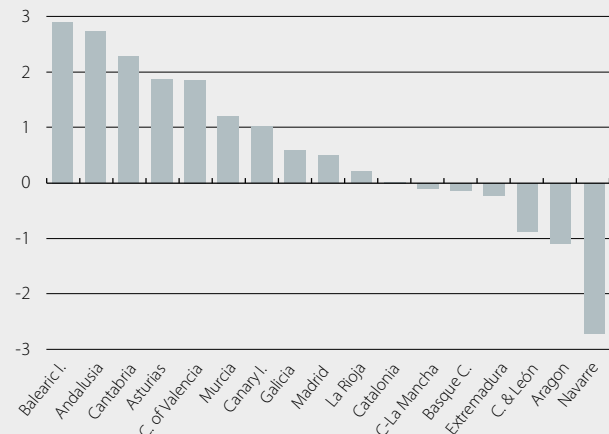
Year-on-year change (%)



Source: CaixaBank Research, based on data from the Ministry for transport, mobility and urban agenda (MITMA), the National Statistics Institute and the Association of Property Registrars.

Spain: price of housing by autonomous community region*

Change Q3 2021 vs. Q4 2019 (%)



Note: * Based on the valuation of unsubsidised housing published by the Ministry for transport, mobility and urban agenda (MITMA).

Source: CaixaBank Research, based on data from the Ministry for transport, mobility and urban agenda (MITMA), the National Statistics Institute and the Association of Property Registrars.

Activity and employment indicators

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
Industry									
Industrial production index	0.7	-9.4	-2.2	3.0	27.9	1.6	-0.9	...	...
Indicator of confidence in industry (value)	-3.9	-14.0	-11.0	-7.3	2.5	2.1	5.4	2.4	...
Manufacturing PMI (value)	49.1	47.5	51.1	53.0	59.2	58.9	57.4	57.1	56.2
Construction									
Building permits (cumulative over 12 months)	17.2	-12.8	-19.9	-19.1	-1.8	15.0	24.3	...	...
House sales (cumulative over 12 months)	3.6	-12.5	-17.2	-17.3	0.6	22.2	30.2	...	...
House prices	5.1	2.1	1.5	0.9	3.3	4.2	...	...	...
Services									
Foreign tourists (cumulative over 12 months)	1.4	-36.9	-72.7	-85.5	-81.3	-52.7	-3.2	27.6	...
Services PMI (value)	53.9	40.3	43.0	44.3	58.8	59.6	56.6	59.8	...
Consumption									
Retail sales	2.3	-7.1	-2.9	-0.4	20.5	-0.3	-0.7	4.9	...
Car registrations	-3.6	-29.3	-13.2	12.7	661.0	-24.5	-20.5	-12.3	-18.7
Consumer confidence index (value)	-6.3	-22.8	-26.3	-22.1	-11.1	-9.1	-6.8	-12.5	...
Labour market									
Employment ¹	2.3	-2.9	-3.1	-2.4	5.7	4.5	...	...	...
Unemployment rate (% labour force)	14.1	15.5	16.1	16.0	15.3	14.6	...	...	...
Registered as employed with Social Security ²	2.6	-2.0	-2.0	-1.4	3.9	3.8	3.7	3.8	4.1
GDP	2.1	-10.8	-8.8	-4.3	17.7	3.4	-	-	-

Prices

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
General	0.7	-0.3	-0.7	0.6	2.6	3.4	5.4	5.5	6.7
Core	0.9	0.7	0.2	0.4	0.1	0.8	1.4	1.7	2.1

Foreign sector

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
Trade of goods									
Exports (year-on-year change, cumulative over 12 months)	1.8	-10.0	-10.0	-8.1	8.7	15.2	17.2	...	...
Imports (year-on-year change, cumulative over 12 months)	1.0	-14.7	-14.7	-14.0	3.3	13.5	17.1	...	...
Current balance	26.2	9.3	9.3	8.3	9.4	11.6	12.7	...	...
Goods and services	36.5	16.5	16.5	16.0	17.0	19.7	21.1	...	...
Primary and secondary income	-10.3	-7.3	-7.3	-7.6	-7.7	-8.2	-8.4	...	...
Net lending (+) / borrowing (-) capacity	30.4	13.7	13.7	12.7	15.7	19.7	21.2	...	...

Credit and deposits in non-financial sectors³

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

	2019	2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	10/21	11/21	12/21
Deposits									
Household and company deposits	5.4	7.5	8.7	8.9	4.9	4.8	4.9	...	...
Sight and savings	10.7	12.3	13.7	14.1	9.2	8.9	8.7	...	...
Term and notice	-13.4	-16.5	-17.1	-20.4	-23.5	-26.0	-27.6	...	...
General government deposits	8.8	1.0	11.8	11.2	16.3	15.1	20.1	...	...
TOTAL	5.6	7.1	8.9	9.1	5.5	5.5	5.8	...	...
Outstanding balance of credit									
Private sector	-1.5	1.2	2.4	2.3	-0.4	-0.7	-0.6	-0.3	...
Non-financial firms	-3.4	4.9	7.9	7.8	-0.7	-1.9	-1.9	-1.2	...
Households - housing	-1.3	-1.8	-1.5	-1.0	0.0	0.6	0.7	1.1	...
Households - other purposes	3.2	0.8	-0.1	-1.8	-0.7	-1.2	-0.9	-1.6	...
General government	-6.0	3.0	8.8	9.5	17.4	22.7	16.7	12.4	...
TOTAL	-1.7	1.3	2.7	2.7	0.6	0.7	0.5	0.5	...
NPL ratio (%)⁴	4.8	4.5	4.5	4.5	4.5	4.4	...	...	...

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.

The energy crisis in Europe

Energy prices rose sharply in the second half of 2021. Gas, oil and coal registered unprecedented year-on-year changes (+290%, +50% and +47%, respectively). Even considering that these prices were unusually low during 2020 due to lower demand for energy, and comparing the current levels with those of 2019, the increase remains very pronounced. What has caused this situation? Will these prices persist in the medium and long term?

The perfect storm in the gas market in 2021

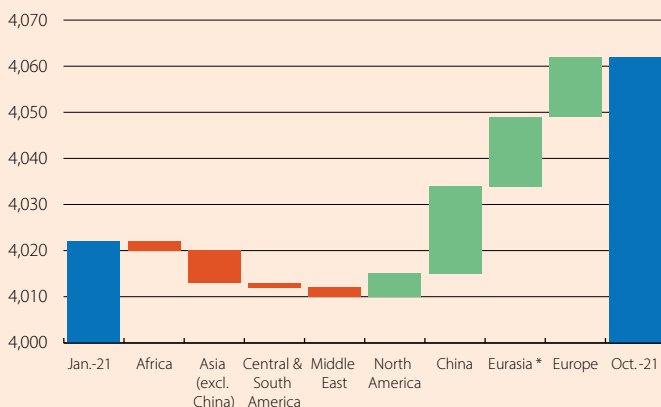
The origin of this price rally can be found in the gas market. There are a number of factors in this market which individually would have had only a small impact on European energy prices, but together they have pushed prices to all-time highs.

The key indicator for understanding this situation is the level of gas inventories in Europe, which is highly seasonal. In 2021, the gas reserves with which Europe emerged from winter were particularly low, due to somewhat more extreme temperatures than usual. During the spring and summer, inventories should have been replenished, but a series of factors prevented this from happening. On the one hand, the lack of wind in various regions and lower hydroelectric power generation led to higher gas consumption compared to these other sources. On the other hand, geopolitics came into play: gas imports into Europe from Algeria passing through Morocco were affected by the breakdown of diplomatic relations between these two countries.¹ On top of this, Russia – the largest exporter of gas into the EU, at 44% of the total in 2020 – reduced its gas exports through the gas pipeline in Ukraine as a result of geopolitical tensions with this country and with a view to applying pressure on Germany to authorise the certification of Nord Stream 2, a pipeline that will make it possible to transport twice as much gas from Russia to Europe.

One of the alternatives for reducing Europe's reliance on Russian and Algerian gas is to increase imports of liquefied natural gas (LNG). This system involves the gas being liquefied at its point of origin before being transported by sea to any port in the world that is equipped with the appropriate regasification infrastructure. The main supplier of LNG for Europe is the US.² However, since 2020 Europe has had a competitor in the form of China. This development also explains much of the increase in the global demand for gas in 2021 compared to what was expected at the start of the year, partly because of disruptions to power generation using other sources such as coal.

Change in gas demand forecasts during 2021

Billions of cubic metres (bcm)

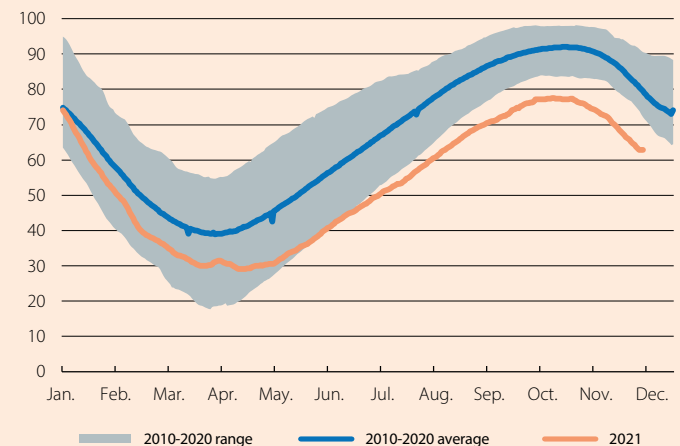


Note: * The majority of this region corresponds to Russia.

Source: CaixaBank Research, based on data from the International Energy Agency (IEA).

Europe: gas reserves

(% of the total capacity)



Source: CaixaBank Research, based on data from Gas Infrastructure Europe.

The rise in the price of gas in Europe has also been influenced by the strong economic revival. Indeed, the momentum of the economic recovery in 2021 has been greater than expected, and this has also fuelled demand for gas in Europe and around the world (see second chart).

Finally, another key factor in this European energy crisis has been the increase in the price of greenhouse gas emissions allowances. Since 2005 there has been a market in the EU, known as the EU ETS, which sets the amount of greenhouse gases that can be emitted by various economic sectors such as electricity or metallurgy. The amount of emissions

1. European imports of natural gas from Algeria accounted for 11.9 % of the total in 2020. Of these, approximately 40% flowed through Morocco.

2. Representing 5% of imports in 2020 and 6.3% in the first half of 2021.

allowances is set by the EU and is reduced each year, which results in an increase in their price. Given the fact that in the summer of 2020 the EU stepped up its emission reduction target for 2030 from 40% to 55%, various regulatory adjustments had to be applied to the EU ETS in order to make it consistent with the new climate goals. These included a faster rate of reduction in annual emissions allowances, from the previous 1.7% to 2.2%. In this context, the price of emissions in Europe increased from an average of 30 euros per tonne of equivalent CO₂ (€/TCO₂) in 2020 to €80/TCO₂ today.³ This price aims to discourage energy generation using polluting sources in favour of clean, renewable energy generation, a goal that has been partly met. Given that the combustion of gas emits much fewer greenhouse gases than coal or oil, the rise in emissions prices favoured the consumption of gas over oil or coal, which in turn increased its relative price.

Medium-term outlook for the gas market

For 2022, energy prices in Europe are expected to moderate beginning in Q2, as the prices for future oil and gas deliveries in the financial markets suggest. With regards to gas in particular, the key uncertainty will be what level of inventories we emerge from winter with. Some experts suggest that if the winter is longer or brings more extreme temperatures than usual, the pressure on prices could rise even further still. However, with the seasonal reduction in energy demand after the end of winter, a significant fall in gas prices in Europe is anticipated, although it will remain above pre-2020 levels.⁴

Looking further ahead, two elements will be key to understanding the dynamics of the energy market in the medium and long term. On the one hand, Europe's ambitious fight against climate change is likely to make fossil-fuel consumption even more expensive. Nevertheless, given its relative cleanliness compared to oil and coal, gas is expected to play a key role during the energy transition. Indeed, even in the outlook envisaged by the International Energy Agency (IEA), in which net zero emissions are achieved by 2050, gas consumption is forecast to increase over the next five years. Later on, once electricity generation using 100% clean sources increases, the consumption of gas should fall.⁵

The other key vector for the future of the energy market in Europe will be geopolitics. To meet its energy demand, Europe has no option but to be a net importer of major sources of energy. This generates a dependency on producing countries, which can sometimes be contrary to European interests, as was the case in 2021 with Russia and Algeria. In the future, circumstances such as those mentioned above could reoccur, although the increase in the generation of energy through renewable sources (such as the sun, wind or water) should alleviate the region's energy dependence.⁶

3. Another factor which has contributed to the increase has been the emergence of investment funds operating in the emissions market.

4. The benchmark gas price in Europe, the Dutch TTF, averaged €18/MWh between 2015 and 2020, while in the second half of 2021 it averaged €72/MWh and at one point reached as high as €180/MWh. On the other hand, the futures markets estimate that from April the price will be the price will be around €80/MWh.

5. In this regard, the IEA points out that, in order to reach net zero emissions by 2050, it will not be necessary to find new oil and gas reserves. However, with current policies and regulations (which are not consistent with reaching net zero), investments of 680 billion a year would be required to meet the estimated demand, a higher figure than that observed in recent years. For further details, see International Energy Agency, «World Energy Outlook 2021».

6. Nevertheless, while these three energy sources are «unlimited» and can be processed in Europe, this is not the case for the minerals that are required to produce the materials for obtaining, generating and storing this electricity (copper, nickel or cobalt, among others). Indeed, some academics and the International Monetary Fund itself point out that the scarcity of these minerals, together with the greater ambitions in the fight against climate change, could push their prices up to all-time highs and slow the energy transition towards a cleaner economy. See L. Boer *et al.* (2021). «Energy Transition Metals». DIW Berlin Discussion Paper n° 1976.

The Iberian electricity market and the price rally in Spain

The energy crisis in Europe has led to a sharp rally in prices, which has been particularly pronounced in Spain. Indeed, in Q4 2021 the wholesale price of electricity in the Iberian market was over three times higher than in Q4 2018, a year in which the peak electricity prices for the period 2010-2020 were recorded (see first chart). In this article, we analyse the consequences of the current energy crisis for electricity prices and shed some light on how it will effect electricity bills in Spain. To do this, we need to understand the structure of the wholesale and retail electricity markets.

The wholesale electricity market

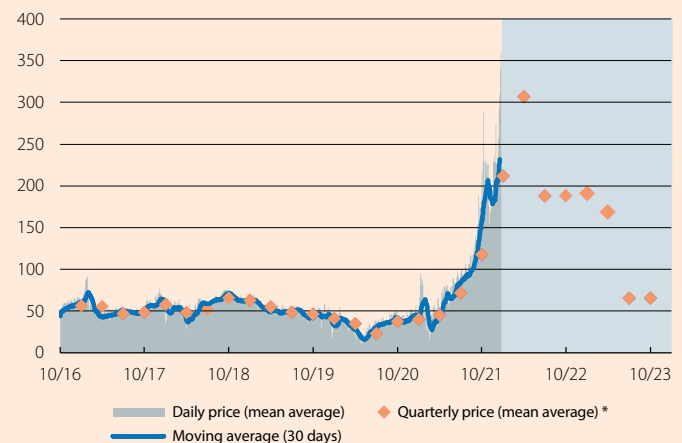
Wholesale electricity markets connect the supply from electricity generating companies with the demand from distribution companies. Thus, their price reflects the costs of production and provides an important indication of the conditions of the electricity market.¹ Given the relative inelasticity of electricity demand, today's high prices mainly reflect strong supply-side pressure, which has led to historic spikes in energy prices in the international markets.²

In the EU, the wholesale markets operate on an auction basis using a marginal price structure. That is, in each hourly tranche, the price of the last unit of electricity that is purchased to cover the demand determines the market equilibrium price at which all generating companies are paid. This market structure means that, in order to meet demand in the wholesale market, lower-cost technologies are the first in. Nuclear power plants essentially have a constant supply at a very low marginal cost, while wind and photovoltaic energies (also with very low costs) have a variable supply throughout the day. The last tranches of demand are often met by more expensive technologies, such as combined cycle power plants, which use gas as their main source of energy, or hydraulic energy, which offers flexibility in its degree of usage thanks to its storage capacity through reservoirs (see second chart).

By remunerating all energies at the highest price, those with lower variable costs can benefit from high prices, which acts as an incentive for investment in renewable energies. In particular, combined cycle power plants are generally the technology used in the Iberian market to meet the marginal demand, as it is an energy source with higher variable costs and greater flexibility in its supply. This «marginal dependence» means that the wholesale price of electricity is mainly determined by the two key factors in the cost of combined-cycle energy production: natural gas and the price of EU CO₂ emissions allowances. Since the beginning of the year, the price of gas has increased almost tenfold in the European markets, while the price of emissions allowances has tripled to €80/tonne of CO₂ at the end of 2021. Thus, the rally in the wholesale price can be largely explained by the surge in prices in these two markets.

But if the structure of the wholesale market and the prices of the key production inputs are common, why then have the price increases for the end consumer been different between EU countries, and so pronounced in the case of Spain? On the one hand, the energy mix is different from country to country: Germany is relatively more dependent on coal (24%, compared to 2% in Spain); in France, nuclear power covers a higher percentage of electricity production (67%, compared to 22% in Spain), and in Italy gas is the dominant source for electricity production (46%, compared to 26% in Spain). In Spain and Portugal, meanwhile, renewable energies play a much more important role in the energy mix (43% and 59%, respectively), although the marginal source of energy generally comes from combined cycle plants. This is not the case in other European economies, as different energy mixes result in different dominant marginal energy sources.

Electricity prices in the Iberian Electricity Market (MIBEL)
(€/MWh)



Note: * The quarterly price forecasts from Q1 2022 onwards are drawn from the prices quoted for quarterly electricity futures contracts for the Iberian market as of 16 December 2021.

Source: CaixaBank Research, based on data from the Iberian Energy Market Operator (comprising Polo Español, or OMIE, and Pólo Português, or OMIP).

1. This is not the only transaction channel between electricity distribution and generation companies. On the one hand, some large companies are both generators and distributors of electricity. On the other hand, electricity distributors (or even companies with high electricity needs) can enter into bilateral, generally long-term contracts with generators, known as Power Purchase Agreements (PPAs).

2. See the article «The energy crisis in Europe» in this same Dossier.

On the other hand, the transmission of wholesale prices to end consumers depends on the structure of the retail market.

The retail electricity market in Spain and Portugal

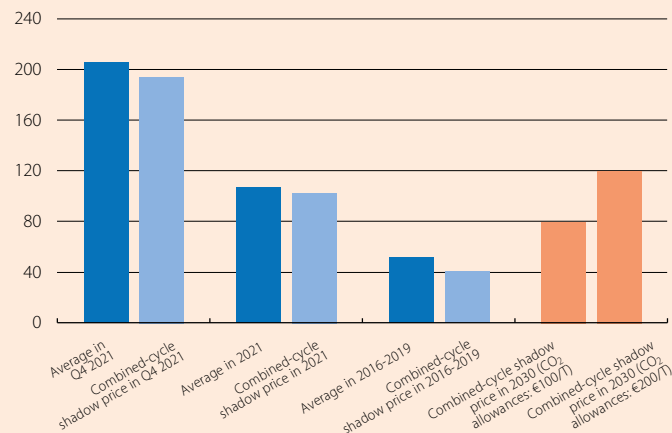
Although Spain and Portugal share the same wholesale market, electricity prices according to HICP data published by Eurostat for Spanish consumers were 46.7% higher in November 2021 compared to the same period in 2020, while in Portugal they rose by only 2.6%.³ This discrepancy can be explained by differences in the structure of the retail market in the two countries.

Firstly, the distribution of consumers between the regulated market (in which the price formation is different in each country) and the free market (where prices tend to be very stable for the consumer) is very different: in Portugal, over 80% of households are on free-market tariffs, while in Spain this is the case for only 60% of customers and the other 40% are on regulated-market tariffs.

Secondly, the regulated market functions differently in Spain and Portugal. In Portugal, the regulated price is defined each year by the market regulator (although there can be quarterly revisions, if wholesale prices deviate from the regulator's forecasts). In Spain, however, the regulated price, which is known as the voluntary price for small consumers (or PVPC in Spanish), fluctuates daily depending on the wholesale price. As a result, the transmission of wholesale-market prices to end consumers, and consequently to inflation, is much more instant in Spain than in other countries such as Portugal. In this context, one of the proposed reforms of the electricity market in Spain to limit this dependence involves reducing the frequency with which the PVPC price is adjusted, as well as tethering it to a wider range of indicators.⁴

Wholesale electricity prices in Spain

(€/MWh)



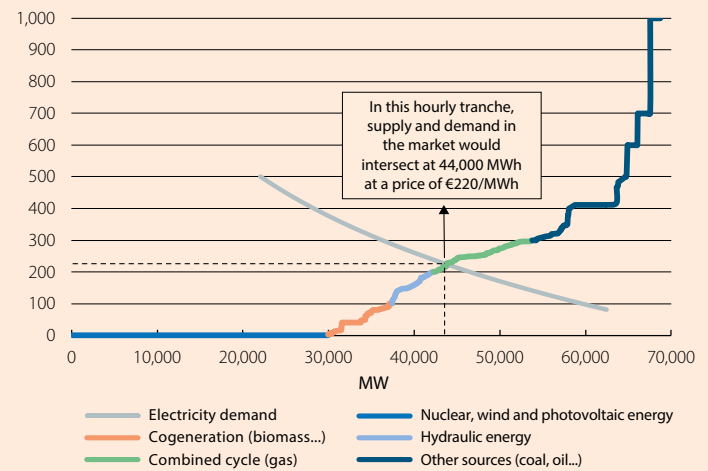
Note: The combined-cycle shadow price is estimated based on an approximation of the variable cost (VC) of generating electricity from this energy source ($VC = 1.85 \times \text{natural gas price} + 0.4 \times \text{emissions allowances price}$). The shadow price range in 2030 assumes that the price of natural gas will return to its historical average, in line with prices in the TTF futures market.

Source: CaixaBank Research, based on data from OMIE and Bloomberg.

albeit at a more moderate rate. All this leads us to believe that the wholesale price will remain above €200/MWh in the coming months, but after the winter it should begin to fall back down, reaching around €100/MWh in the medium term (see third chart). Nevertheless, uncertainty remains very high. It is very difficult to predict how the geopolitical conflict between Europe and Russia will develop, and we have seen that this has a direct impact on the cost of energy.

Electricity supply and demand curves in the wholesale market

(€/MWh)



Note: The example given in this chart is based on real electricity supply and demand curves in the Iberian wholesale market (OMIE), but it is for illustrative purposes only.
Source: CaixaBank Research.

How much will it cost to switch on the lights this year?

As mentioned earlier, for 2022 the supply-side pressures are expected to ease over the course of the year, primarily due to the normalisation of gas prices, as indicated by the future prices quoted in the financial markets. On the other hand, the shock observed in the emissions allowances market is likely to persist, and given the EU's increased climate ambitions for the coming years, the price of these allowances is likely to continue to rise,

3. For comparative purposes, over the same period electricity prices in France rose by 3.3%, while in Germany they rose by 3.1% and in Italy, by 33.2%. In the article «Electricity prices are sky high, but what about household bills?» in this same Dossier we use internal CaixaBank data to analyse the change in the payment of electric bills for customers residing in Spain.

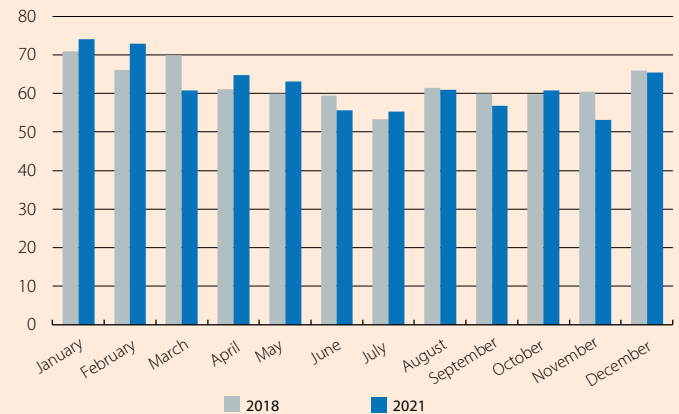
4. Another important factor is differences in taxation between countries. For example, a significant portion of the electricity bill in Spain is made up of so-called «tolls» and «charges», as well as taxes. In recent months, the government has sought to reduce the relative weight of these components in the electricity bill.

Electricity prices are sky high, but what about household bills?

2021 was a turbulent year in the electricity market.¹ Prices rose alarmingly beginning in July and the year ended with the megawatt hour (MWh) at around 300 euros in the wholesale market.² In an attempt to reduce the impact of this price increase on consumers, the government implemented several tax measures, such as a VAT reduction and a temporary suspension of the electricity production tax. At the same time, the rates by hourly tranche throughout the day were also modified to encourage more efficient energy use. So the question is, what was the final impact on the pockets of households?

To answer it, we looked at the direct debit electricity bill payments of individual CaixaBank customers.³ Of course, the amount that a household pays for its electricity bills depends on many factors: the amount of energy consumed, the price of that energy, the taxes in force, the contracted tariff, etc. In the end, however, what affects household consumption is the amount they end up paying for their energy supply at any given time. Yet, despite everything that has happened, the median electricity bill during 2021 was quite similar to that of 2018,⁴ a pre-pandemic year with wholesale market prices similar to those of the first half of 2021. In Q1 2021, the median electricity bill (i.e. the amount at which half of households paid less and half paid more) was 68 euros, the same amount as in Q1 2018. In Q4 2021, the median bill amounted to 60 euros, which was 3.6% lower than the median bill in Q4 2018.

Spain: monthly evolution of the median electricity bill
Amount (euros)



Note: Amounts of individual customers' direct debit electricity bill payments each month (excluding companies and self-employed workers).

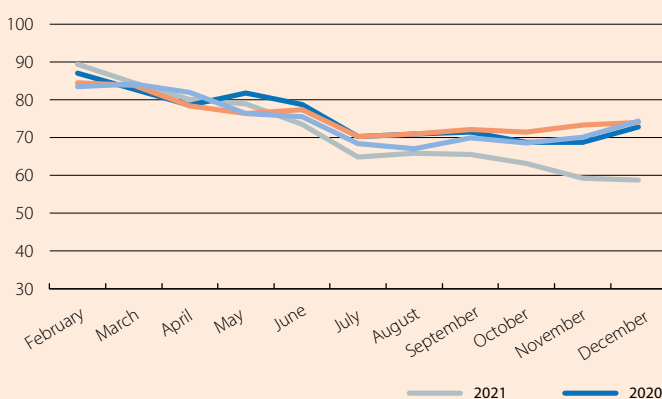
Source: CaixaBank Research, based on internal CaixaBank data.

The median bill on the free-market tariff decreases, while that of the regulated market increases

However, this outcome changes dramatically if we analyse it based on the type of contract each household has. In the regulated market, which corresponds to 39% of households,⁵ the median bill in Q4 2021 amounted to 54 euros, 13% higher than in Q4 2018

Spain: monthly evolution of the median electricity bill in the free market (fixed-price tariff)

Amount (euros)

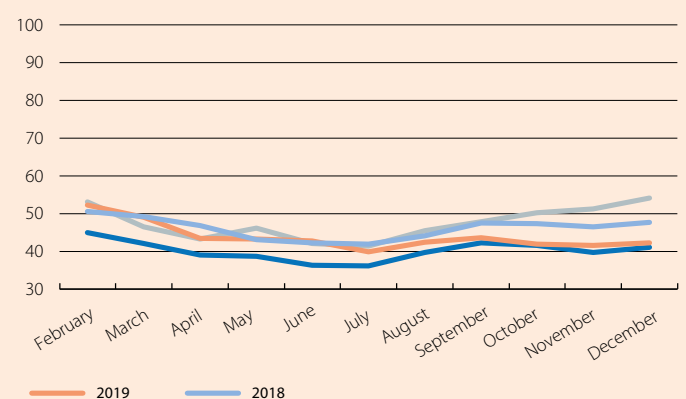


Notes: Two-month moving median average. Amounts of individual customers' direct debit electricity bill payments each month (excluding companies and self-employed workers).

Source: CaixaBank Research, based on internal CaixaBank data.

Spain: monthly evolution of the median electricity bill in the regulated market (PVPC tariff)

Amount (euros)



1. For more details on the factors behind the rise in electricity prices, see the Focus «The impact of the rise in electricity prices on the Spanish economy» in the MR12/2021.

2. In the first half of 2021, the average price per MWh in the wholesale market was 60 euros.

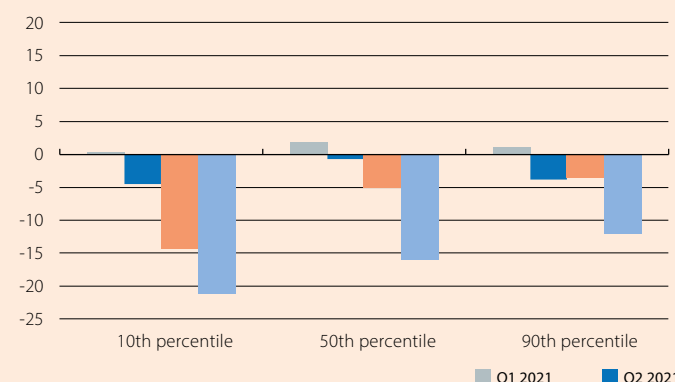
3. To do this, we added together the direct debit electricity bill payments for each individual customer each month (we excluded companies and self-employed workers). We also differentiated between customers on free-market tariff contracts (usually with a fixed price for the duration of the contract) and those on the regulated PVPC tariff with one of the suppliers offering these regulated prices (see <https://sede.cnmc.gob.es/listado/censo/10>).

4. For 2021 as a whole, the median average bill stood at 743 euros, compared with 748 euros in 2018 (–0.6%, and –5.1% after adjusting for inflation).

5. i.e. of private consumers with a contracted capacity of less than 10 kW (Electric Indicators Bulletin, November 2021, CNMC).

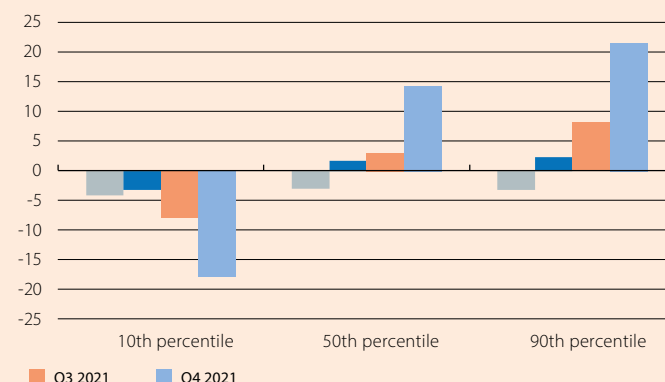
Spain: change in free-market electricity bills (fixed-price tariff)

Percentage change versus the same quarter of 2018 (%)



Spain: change in regulated-market electricity bills (PVPC tariff)

Percentage change versus the same quarter of 2018 (%)



Note: Amounts of individual customers' direct debit electricity bill payments each month (excluding companies and self-employed workers).

Source: CaixaBank Research, based on internal CaixaBank data.

(+28% compared to Q4 2019 and +32% compared to Q4 2020).⁶ In the free market, on the other hand, the median bill in Q4 2021 fell to 61 euros, 16% less than in Q4 2018 (–18% compared to Q4 2019 and –14% compared to Q4 2020).⁷ These marked differences are due to the fact that, in the free market, energy prices are fixed for the period established in the contract and are only updated when the contract is renewed, so the tax cuts have benefited households on this type of contract. In the regulated market, in contrast, energy prices are variable and change every day and every hour (corresponding to the so-called voluntary price for small consumers, or PVPC in Spanish), so the price increases have been transmitted quicker to consumers' electricity bills and have exceeded the tax cuts.

The increases in electricity bills are concentrated among households with greater electricity consumption in the regulated market

If we analyse the question based on what consumers spent on their electricity bills, we see a widespread reduction in the amount paid by those on free-market tariffs in Q4 2021, among both lower bills and higher bills. Specifically, bills in the 10th percentile (25 euros) were 21% lower than in 2018, while in the 90th percentile (142 euros) they were 12% lower than in Q4 2018. In the regulated market, in contrast, the higher bills are more adversely affected by the higher energy prices. The 90th-percentile bill (119 euros in Q4 2021) was 22% higher than in Q4 2018, a significantly higher increase than the median bill. On the other hand, the temporary price reduction for consumers benefiting from the social credit can be seen in lower-value bills: the 10th-percentile bill in Q4 2021 (18 euros) was 18% lower than in Q4 2018.

In short, 2021 was a roller-coaster year for electricity bills, but it did not affect all consumers alike. As for 2022, it does not look like it will be any less turbulent. Part of the price increase in the wholesale market in 2021 could be transmitted to the free market as contracts are renewed, although if prices in the wholesale market are reduced, this effect will be temporary. What seems clear is that electric bills will continue to give fuel to the conversation.

6. For 2021 as a whole, the median average bill in the regulated market stood at 579 euros (559 euros in 2018).

7. For 2021 as a whole, the median average bill in the free market stood at 861 euros (902 euros in 2018).

Carbon prices: design and macroeconomic impact

There is broad consensus among economists that assigning a price to greenhouse gas emissions is the key tool for facilitating the transition to a climate-neutral economy and keeping global warming below 2°C compared to pre-industrial levels. Yet, today, only 20% of global emissions are covered by a system that assigns them a cost,¹ once again highlighting the wide gap between the policies implemented and the ambitions of the climate targets we set ourselves. Indeed, there is much debate surrounding how this price should be designed: what level should it reach, and what impact will it have on economic growth and inflation? Below we will try to shed some light on these issues.

How to calculate the price of emissions

There are two methods generally used to calculate the penalty to be imposed on harmful emissions, most commonly referred to as the «carbon price». On the one hand, there is the method which estimates the cost of the clean technology needed to replace polluting goods, services or productive models. A variety of polluting goods and services can now be replaced by clean alternatives at no additional cost, so without adding a price on carbon there are already incentives to use cleaner production models. However, there are various goods and services (mainly in industry and transportation) for which the clean alternatives are currently very expensive, so a very high carbon price (of around 1,000 dollars per tonne of equivalent CO₂, or \$/TCO₂ hereinafter) would be needed to discourage their current production model.² On the other hand, the second method is to determine the optimal price to correct the negative externalities generated by polluting activities (greater frequency and severity of adverse weather events, air pollution, etc.). The models used to estimate the price of carbon in the EU with the aim of keeping the temperature rise below 2°C place it within the range of \$80/TCO₂ to \$200/TCO₂ in 2030 and 2050, respectively. Those which seek to achieve net zero emissions by 2050, meanwhile, place the price at around \$300/TCO₂ in 2030 and \$1,000/TCO₂ in 2050.³

The macroeconomic effects of rising carbon prices

There is broad consensus that imposing a price on emissions would have very positive long-term effects for the environment.⁴ In terms of the impact on economic growth, we would see positive effects thanks to greater public and private investment in clean industries, which enable more jobs to be generated than investment in polluting industries.⁵ Also, imposing a price on emissions would help to reduce the risk of extreme weather events with a high economic impact.

In the short term, however, there would also be some negative effects. In particular, the main channel through which the carbon price would adversely affect growth would be lower private consumption resulting from the higher cost of goods and services affected by the introduction of a price on carbon.

Finally, the effects in terms of welfare of a price mechanism on emissions will depend on how the tax revenues are allocated. These revenues could be used either to compensate the individuals who are most affected by the rise in carbon prices, to reduce other less efficient taxes, or to invest in certain categories of public spending.

For illustrative purposes, and with the help of a global macroeconomic model, we analysed how different carbon price scenarios would impact GDP and inflation relative to a baseline scenario without a global carbon price.⁶ This exercise allows us to explore what economic decisions individuals and companies would take in the face of changes in the relative prices of different energy sources. Specifically, depending on the relative price of different energy sources, consumers will adjust their demand for energy and consumer goods, while companies will adjust their demand for inputs and energy sources used in the production process.⁷ Thus, a carbon price shock would lead to a relative rise in the cost of the most polluting energy sources and provide incentives for increased demand for cleaner sources (as well as for less emissions-intensive goods and inputs). At the same time, this helps to mitigate the adverse effects of further global warming on GDP. In this exercise it is assumed that the revenues from this mechanism are used to rebalance the public accounts, without changing the existing structure of public expenditure or taxes in each country.

1. Either by regulators imposing a price on products containing a certain amount of emissions, or through an emissions market such as that of the EU. For more details, see «How to act in the face of climate change? Actions and policies to mitigate it» in the MR11/2019.

2. See *The Economist* (2021). «Giving up carbs – What is the cheapest way to cut carbon?», 27 February 2021.

3. See W. Nordhaus (2018). «Projections and Uncertainties about Climate Change in an Era of Minimal Climate Policies». *American Economic Journal: Economic Policy*, No. 10(3), 333-60. In the remainder of the article we will refer to these estimates, which are those used by the Network for Greening the Financial System.

4. See G.E. Metcalf and J.H. Stock (2020). «The Macroeconomic Impact of Europe's Carbon Taxes». Working Paper 27488, National Bureau of Economic Research.

5. See the article «The green recovery» in the Dossier of the MR01/2021.

6. We focus on four main scenarios: (i) a gradual increase in the global price of carbon, reaching \$200/TCO₂ in 2050 (consistent with keeping the global temperature rise below 2°C); (ii) this same scenario, but accompanied by investment in renewable energies; (iii) a sudden increase in the carbon price to \$200/TCO₂ in 2030 as a result of late regulatory reaction, and (iv) a gradual increase to \$1,000/TCO₂ (consistent with achieving net zero emissions by 2050).

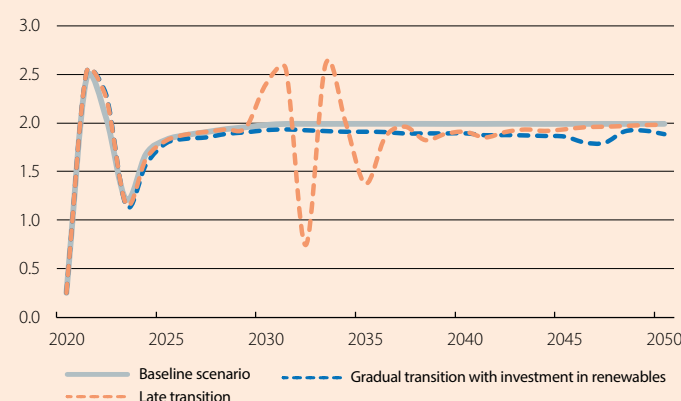
7. This is a demand model in which there are no changes in investment decisions, so the indirect effects of rising carbon prices on the development of «green» technologies, on the increased installed capacity of renewable energies or on the electrification of industry and the transportation network are not considered.

With the introduction of the carbon price, GDP in 2050 would be slightly lower than in the baseline scenario (see first chart), mainly due to lower private consumption and investment due to the rise in the cost of goods and services affected by the introduction of this price. In 2050, the negative impact on the euro area's GDP would be less than 2%, even in the most ambitious climate transition scenario – with a higher emissions price imposed to reach net zero that year – or in the scenario with a late transition (see first chart). The results are similar for the US, although China would be more adversely affected in the more ambitious climate scenario – its GDP in 2050 could be 6% lower that year compared to a scenario without a global carbon price – as the country is more dependent on more polluting energy sources, meaning that greater effort will be required in the transition. That said, in the scenario with a global carbon price that would allow the temperature rise to be limited to less than 2°C in 2050 accompanied by a significant increase in investment in renewable energies, the negative impact on GDP would be very small in the euro area and the US, and contained in the case of China.

As for inflation, ensuring that the carbon price is increased gradually and predictably is key to keeping it at bay. This would not be the case for a disorderly energy transition with a high emissions price imposed suddenly in 2030 to compensate for its late introduction (see second chart). In that scenario, inflation in the euro area would rise sharply that year and have a contractionary effect on GDP, which in turn would generate volatility in inflation over the next few years.⁸ Such a scenario has some parallels with the energy shock of 2021. The sudden surge in energy prices would lead to a rise in headline inflation in the short term, and this would dent economic growth due to the contraction of private consumption and the rise in interest rates needed to contain inflationary pressures.

Euro area: impact of a rise in carbon prices on the CPI

Year-on-year change (%)



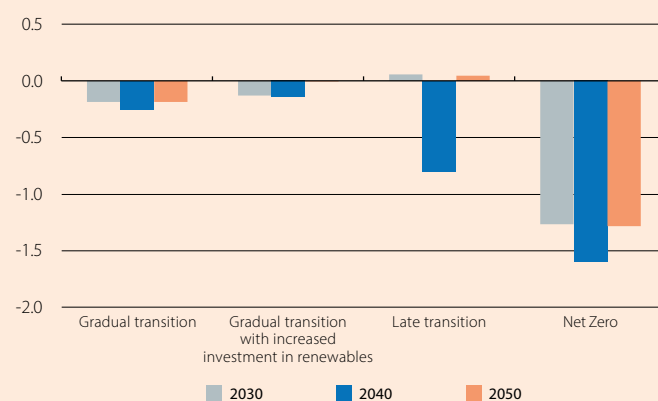
Notes: In the gradual transition scenario, we assume a gradual increase in the price of carbon to \$200/TCO₂ in 2050, coupled with an increase in the rate of investment in renewable energies. The late transition scenario involves a sudden increase in the price of carbon to \$200/TCO₂ in 2030. The impacts are calculated relative to a baseline scenario in which there is no global CO₂ price system.

Source: CaixaBank Research, a partir de datos del Global Economic Model de Oxford Economics.

impact on those who will be potentially most affected by the carbon price will be key to its success.

Euro area: impact of a rise in carbon prices on GDP

Deviation relative to the baseline scenario (%)



Notes: In both gradual transition scenarios, we assume a gradual increase in the price of carbon to \$200/TCO₂ in 2050. The late transition scenario involves a sudden increase in the price of carbon to \$200/TCO₂ in 2030. The Net Zero scenario involves a gradual increase in the price of carbon to \$1,000/TCO₂ in 2050. The impacts are calculated relative to a baseline scenario in which there is no global CO₂ price system.

Source: CaixaBank Research, based on data from the Oxford Economics Global Economic Model.

In contrast, a scenario with a gradual increase in the price of carbon combined with a steady rate of investment in renewable energies would result in a long-term disinflationary impact in the euro area, thanks to lower electricity prices (remember that the marginal cost of renewable energies is negligible). In this regard, the International Energy Agency considers the development of renewable energies to be the key, since consumers would be much better protected against circumstances such as those experienced in 2021 with the significant rise in electricity prices: if renewables were to make up a larger portion of the energy mix, commodity price volatility would affect a smaller portion of energy generation activities, so electricity bills would tend to be more stable.

However, the challenge of implementing the carbon price in a coordinated manner between advanced and emerging countries is daunting and not without difficulties. One such difficulty relates to how to manage the winners and losers of the transition, both between different economies and within each one. Designing mechanisms that help minimise the impact on those who will be potentially most affected by the carbon price will be key to its success.

8. See the Focus «The impact of the rise in electricity prices on the Spanish economy» in the MR12/2021, and I. Alonso and M. Suárez-Varela (2021). «An analysis of the global economic impact of the recent increase in energy commodity prices», *Quarterly report on the Spanish economy* (Q4 2021), Bank of Spain.

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